

What tests are done for UL Fire Ratings?

Before one can understand the process of what tests are carried out there are a few things that need to be explained and taken into consideration.

1. Paper documents char between 425-450 ° F
2. The average house fire is approximately 1200° F
3. UL tests subject safes to external tests of up to 2000° F
4. UL tests only allow for a maximum humidity of 80%
5. There are typically 3 classes of fire safe depending on what they are intended to contain

Class 350

This rating states that the internal maximum temperature must not exceed 350° F at any time during the tests and is acceptable for paper documents.

Class 150

This rating states that the internal maximum temperature must not exceed 150° F at any time during the tests and is acceptable for magnetic tape and photographic film.

Class 125

This rating states that the internal maximum temperature must not exceed 125° F at any time during the tests and is acceptable for floppy disks.

Each classification must not exceed its maximum internal temperature for the specific length of time that it is being tested for. The time ranges are from 30 minutes to 4 hours. As an example; a UL rating of Class 150 2 Hour simply means that the internal temperature will not exceed 150° F for up to 2 hours.

So what tests are done? Oven tests are performed on a safe heating up the external temperature to 1200-2000° F for the time limit being tested for. A cool down test is also performed with the oven turned off but the safe left inside. As this cooling occurs the safe continues to heat up from the residual heat inside the oven. Throughout the heat up and cool down tests, the safe may not exceed its maximum internal temperature for the class it is listed under.

Next, an impact test is also performed by dropping the safe from a height of 30 feet onto concrete; simulating a structural collapse of a building. The safe is then turned upside down and reheated for 30 minutes. A final test known as an explosion hazard test is also completed to ensure that the safe will not self explode by increased internal pressure due to rapid heating; thus causing bodily harm and damage to the contents. Once a safe has passed all 3 tests it receives a UL rating and classification.