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## *Common Ratings used for fire and burglary classifications.*

The rating systems for safes are defined by construction or performance. Performance ratings are generally ranked by amount of time your valuables are safe when under attack by either burglary or fire. The following list will give you a general idea of how safes are rated, and these ratings are used on this website.

### Construction Ratings

**B Rated** - Steel, doors less than 1 inch thick, walls less than 1/2 inch thick.

**C Rated** - Steel, doors at least 1 inch thick, walls at least 1/2 inch thick.

**E Rated** - Steel, doors at least 1 1/2 inches thick, walls at least 1 inch thick.

**ER Rated** - Safe or chest labeled with: "UL Inspected Tool Resisting Safe TL 15 Burglary"

**F Rated** - Safe or chest labeled with: "UL Inspected Tool Resisting Safe TL 30 Burglary" or "UL Inspected Torch Resisting Safe TR 30 Burglary" or "UL Inspected Explosive Resistant Safe with Relocking Device X 60 Burglary"

**G Rated** - Safe or chest labeled with: "UL Inspected Torch and Explosive Resisting Safe TX 60 Burglary" or "UL Inspected Torch Resisting Safe TR 60 Burglary" or "UL Inspected Torch and Tool Resisting Safe TRTL 30 Burglary"

### Performance Ratings - Burglary Classifications

**TL -15 Rating** - Successfully resist entry for a net assault time of 15 minutes when attacked with common hand tools, picking tools, mechanical or portable electric tools, grinders, drills or pressure devices.

**TL- 30 Rating** - Successfully resist entry for a net assault time of 30 minutes when attacked with common hand tools, picking tools, mechanical or portable electric tools, grinders, drills or pressure devices.

**TRTL - 30 Rating** - Successfully resist entry for a net assault time of 30 minutes when attacked with common hand tools, picking tools, mechanical or portable electric tools, grinders, drills , pressure devices and oxy-fuel gas cutting or welding torches.

**TRTL - 60 Rating** - Successfully resist entry for a net assault time of 60 minutes when attacked with common hand tools, picking tools, mechanical or portable electric tools, grinders, drills , pressure devices and oxy-fuel gas cutting or welding torches.

**TXTL - 60 Rating** - Successfully resist entry for a net assault time of 60 minutes when attacked with common hand tools, picking tools, mechanical or portable electric tools, grinders, drills , pressure devices, explosives and oxy-fuel gas cutting or welding torches.

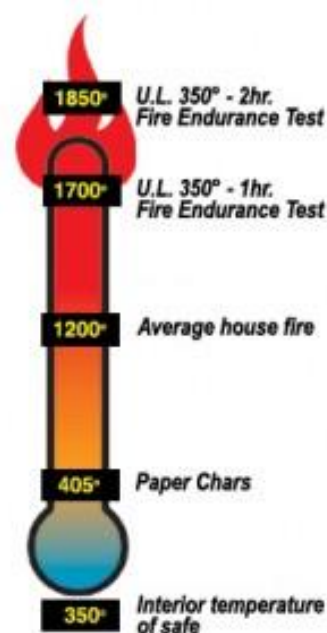
### Performance Ratings - Fire Classifications

**4 Hour Rating** - Maintain an interior temperature of less than 150 degrees F and an interior humidity less than 85% when exposed to fire (up to 2000 F) for 4 hours.

**3 Hour Rating** - Maintain an interior temperature of less than 150 degrees F and an interior humidity less than 85% when exposed to fire (up to 2000 F) for 3 hours.

**2 Hour Rating** - Maintain an interior temperature of less than 150 degrees F and an interior humidity less than 85% when exposed to fire (up to 2000 F) for 2 hours.

**1 Hour Rating** - Maintain an interior temperature of less than 150 degrees F and an interior humidity less than 85% when exposed to fire (up to 2000 F) for 1 hour.



### UL Labels

If a safe or chest bears the "Underwriters' Laboratories, Inc." , then it's model has been fully tested by this highly respected independent laboratory. On the UL label will be a complete performance coding. If your safe has an UL label, then you can be assured it meets or exceeds the standards set by [Underwriter Laboratories, Inc.](http://www.ul.com)

## *Ten things you did not know about UL's safe testing*

1. The best safecrackers in the business never steal a penny. They work for UL.
2. UL has been testing and certifying safes for more than 80 years. The first safe tested for burglary resistance was in 1923 and the first bank vault in 1925.
3. Chisels, wenchers, screwdrivers, power saws, cutting torches, crowbars, abrasive cutting wheels, jackhammers, even specified amounts of nitroglycerin are just a few of the "tools" UL technicians use during a safe attack. The idea is to test safes to worst-case scenarios. They use tools that could be found at any construction site or hardware store. They also analyze blueprints as if the burglar might have blueprints of the design and attack its weakest points to evaluate the safe for certification.

4. UL's safe attack tests are conducted by a two-person crew. The object is to create an opening large enough to withdraw "valuables" (anywhere from 2- to 6-square-inches on a safe and up to 96-square-inches on a vault), activate the locking mechanism so the door opens or to cut as many bolts from the door as necessary to pry it open before the time specified in the rating requirement expires.
5. Safes are rated for their resistance to attack against specific tools for a set period of time. There are a dozen different ratings, everything from ATM machines, to gun safes to bank vaults. For example, a safe that bears a Class TRTL-15x6 rating, which might be found in a jewelry store, should resist a hand tool and torch attack for a minimum of 15 minutes. A TRTL-30x6-rated safe, which would protect important documents or store money, should withstand an attack for 30 minutes. The ultimate safe rating — a TXTL60 — should withstand an hour's worth of attack that includes the use of 8 ounces of nitroglycerin.
6. Because of the size and weight of certain safes and vault doors, it is not always practical to have the product shipped to UL's laboratory locations. UL's burglary protection staff has traveled to destinations such as Japan, France, Israel, England, Finland, Taiwan and India.
7. In addition to burglary protection ratings, UL also rates safes for their fire resistance protection. Class 350 safes protect paper documents; Class 150 safes protect magnetic tape and photographic film, while Class 125 safes protect floppy disks. In addition to the Class Rating, safes obtain an hourly rating for fire resistance — anywhere from 30 minutes to four hours.
8. Another cool test UL runs on safes is an impact test. This test simulates a safe falling through multiple stories of a building — resulting from a fire that has weakened the structure. After the safe is heated to 2,000 degrees Fahrenheit in a furnace, it's raised three stories and dropped onto a pile of bricks. In order to meet the requirement, the safe can't pop open. Temperatures inside can't rise to above 300 degrees Fahrenheit and sample papers left inside have to be readable.
9. The specialized suits you sometimes find technicians wearing are not just for show. Their entire ensemble, including protective coat, helmet and gloves, protects the crew against the adverse effects of sparking. After all, safety can't be taken for granted, even within the walls of UL.
10. Safes are just one of the 19,000 product categories that UL tests and certifies. While UL's burglary protection team cracks combinations, shatters glass and fires .44-caliber bullets at body armor, other UL engineers and technicians keep busy testing everything from TVs, coffee makers and holiday light strings to fire extinguishers, medical CAT scan equipment and building materials.

## *Safecrackers use a stethoscope, fact or myth?*

The key to opening a safe without the combination is in the hands, not the ears.

"Do I wear a stethoscope to safe jobs? Sure, but it's only a showpiece," says Marty Arnold, treasurer of the Greater Philadelphia Locksmiths Association. "People expect to see one."

Fifty years ago, locks might have made enough noise for safecrackers to listen their way through a job, according to Arnold, but modern locks are designed to fool the ear.

"Today's locks don't make the right noise in the right places, or are designed to make so much noise you can't tell when you get the right combination," says Frank Mullozzi, a member of the UL safecracking team that has a combined experience of more than 50 years testing safes.

Most safes use combination locks with one- to four-number combinations. Combination numbers correspond to wheels, or tumblers, in the lock. Each tumbler has an opening, or a gate. When combination numbers are dialed in the proper directions, the gates line up and the lock will open.

The larger the number of combinations, the greater the security — and the greater the need to write down the combination.

To bypass these safeguards, you need to know how many tumblers there are in the combination lock. This is tough, since the only ways to find out are by listening for the tumblers to touch each other when the dial is spun, or by drilling a hole through the door and using a scope to view them.

After the number of tumblers is determined, those educated in the art of lock manipulation can narrow down the dialing sequence and crack the combination — with enough time. Not surprisingly, then, lock manipulation is too time-consuming for some safecrackers.

"With the 'bad guys,' time is the enemy," Mullozzi adds. "The more time they take, the greater the chance they have at getting caught."

Ensuring that a safe cannot be drilled or sawed open in a reasonable amount of time is the duty of the safe-testing division at Underwriters Laboratories, which has been testing and rating safes since 1938. It also tests vaults and ATMs.

UL is the only organization outside of the U.S. government to conduct these kinds of tests, and its ratings for safes are used by insurance companies as a benchmark for the level of security required at banks and jewelry stores.

Mullozzi says he and two partners use tools most commonly employed by burglars, according to information provided by police departments, insurance companies and safe manufacturers. They also scan the blueprints of safes before starting.

"It's a worst-case scenario," Mullozzi says. "We have inside information because we assume that the burglars also have inside information."

In every test, UL's safecrackers try to pry open the safe door. They also attempt to create an opening large enough to pull out the money or jewelry. On vaults, the minimum size hole is 16 inches, enough for a tiny person to crawl through.

Additionally, the UL team uses lock manipulation to test the combination locks on safes. For instance, if the lock of a high-security safe is opened within 20 hours, it fails.

Overall, UL has a dozen different ratings for safes, depending on what the safes are used for and what they are protecting. ATMs, gun safes, jewelry safes and bank vaults all have their own specific ratings for resistance to burglary. The tests range from five minutes of assault with tools from around the house to an hour of abuse that includes the discharge of 8 ounces of nitroglycerin.

Another division in UL rates safes for fire-resistance. Currently, UL has three different ratings for fire-resistance in safes: protecting paper documents, protecting magnetic tape and photographic film, and protecting floppy disks.