

# An Advanced Guide to Buying a Safe for Your Silver and Gold

By Larry LaBorde

Recently at a local social event, I met a locksmith, and we started talking shop on the topic of securing assets with locks and the *what's what* in the safe world. After a brief but very interesting conversation, I felt inspired to do a little research about the wide world of safes. What I learned was both fun and fascinating.

## Two Ways Safes Are Rated

The ratings for safes are separated into two categories, *performance ratings* and *general construction ratings*, which were established decades ago and reflect widely accepted manufacturing standards. Construction ratings, while still useful, are less popular since there is only an *implied* level of security versus a *tested* level of security.

## General Construction Ratings

Construction ratings stem from simple assessments of a safe's physical build characteristics.

### *B rating*

Any locked box. The assumption is that these boxes are better than a locked drawer but not all that secure from a determined individual with a large flathead screw driver and a hammer.

### *B/C rating*

A general rating for safe with a 1/4" of metal in the walls of the cabinet and 1/2" of metal in the door.

### *C rating*

This is defined as a cabinet's having a minimum thickness of 1/2" of steel in the walls, a minimum thickness of 1" of steel in the door and "a lock."

## Performance Ratings

Underwriter's Laboratory (UL), a global leader in certifying, testing and inspecting products, gets to have far too much fun with the testing and rating of safes, utilizing teams with skill sets ranging from brute strength to mechanical genius.

UL equips these characters with the blueprints of the safe, a supply of high-end portable tools, torches, explosives, a stopwatch and a desire to get into the tested safe as fast as possible, all as part of the process of certifying safes. Only safes that meet UL's minimum build specifications qualify for testing by the organization.

The first take-away revelation was that ***most safes are opened in less than fifteen minutes.*** Very few safes survive the testing process to the thirty minute mark, and even less survive to the one hour mark. This doesn't mean that an average person can get a safe open that quickly; it simply serves as a benchmark for the fastest time top professionals can open it. Most of UL's testing stops after 30 minutes, and no testing goes beyond 60 minutes. At that time, a safe

receives a Tools-60 rating, a Torch-60 rating or an Explosives-60 rating. Most ratings are tool ratings with the addition of a torch or explosives rating.

The second lesson relevant to performance testing was that the backbone of all security assumptions for safes is that ***when someone starts the process of getting into a safe, he/she has only a limited amount of time to complete the task before getting caught.***

### **Decoding UL Performance Ratings**

Prefixes indicate what attack method UL used:

- TL means that the attack used tools
- TR means that the attack used a torch
- TX means that the attack used explosives

Suffixes indicate how long the safe survived during attack testing:

- - 15 means that the safe survived up to the 15 minute mark while under attack
- - 30 means that the safe survived up to the 30 minute mark while under attack
- - 60 means that the safe survived up to the 60 minute mark, at which point the testing stopped

Examples of UL ratings include:

#### *TL-15*

Two members of the UL team could not get into the safe in under fifteen minutes of continuous work time using their prescribed list of high power portable tools.

#### *TRTL-30*

Two members of the UL team could not get into the safe in under thirty minutes of continuous work time using their tools or a prescribed portable torch

#### *TXTL-60*

Two members of the UL team could not get into the safe in under an hour using tools and dynamite.

These ratings give the consumer an understanding of what it takes to get into big steel and concrete boxes. These numbers are extremely useful to consumers because many safe manufacturers do a fantastic job of looking and feeling secure, heavy and sturdy while doing a horrible job of actually being “safe.”

Many gun safes, for example, are notoriously bad in this regard. The manufacturer builds a beautiful stout looking box, fills the doors and walls full of low-grade plaster or concrete and turns these products loose on the consumer market, touting them as high quality products. Unfortunately, the reality of these safes is that the average highly motivated 17 year old male with tools from somewhere in the neighborhood can probably get into most of these “safes.”

### *A Special U.L. Rating: Residential Security Containers*

The minimum performance rating of U.L. rated safes is the “U.L. Residential Security Container rating.” This rating means that it took the UL testers at least five minutes to get into the container using a large screw driver and a hammer.

### **UL’s Build Specifications**

Here is a description of the basic minimum build specifications for all UL ratings (with the exception of the residential security container):

- The safe must have a UL Group II, Group IIM, Group I or Group IR combination lock (described below).
- To ensure that the safe be difficult to move, it must be either heavy or immobile. UL requires that it either weigh 750 pounds or more, or have the ability to anchor to the floor and a set of instructions about how to secure it there.
- The body walls of the safe’s cabinet and door must be made of a material equivalent to at least 1” open hearth-steel with a minimum tensile strength of 50,000 psi.
- Walls must be fastened in a manner equivalent to a continuous 1/4” penetrating weld with a minimum tensile strength of 50,000 psi.

### **A Word about Locking Mechanisms**

Whether on a high quality safe with a high UL rating or on a low-cost, low-quality safe, the locking mechanisms you will find fall into one of three categories: electronic, mechanical or hybrid. Just as with the safes themselves, there is no such thing as an impenetrable lock; some just take more time than others to spring.

### **UL Ratings for Mechanical Dial Locks**

As with other characteristics of safes, Underwriters Laboratory has standardized the certification system for different locks. There are four UL categories for mechanical dial locks: Group IR, Group I, Group 2M and Group II. The vast majority of the safes have a group II locking mechanism.

The ratings take into account the fact that safecrackers or burglars can X-ray simple mechanical locks to get a view of their inner workings, making the locks easier to open. Some newer locks use materials that do not show up on X-rays, making those locks harder to crack.

Here are descriptions of UL safe locking mechanism ratings in ascending order:

- Group II: This mechanism can, in the hands of a skilled professional, be opened in less than twenty minutes.
- Group 2M: These locks provide a moderate degree of difficulty and have passed the two man-hour manipulation test.
- Group I: These mechanisms take at least 20 man-hours to open but, if X-rayed, can be opened in a shorter period of time.

- Group IR: These locks have the same requirements as Group I locks and also can fend off being X-rayed or other radiological attacks within reason.

### **UL Ratings for Electronic Keypad Locks**

In recent years, electronic locks have become extremely popular versus their mechanical counter parts in the domestic safe market and have some definite advantages. To start with, it takes a fraction of the time to open the lock and get into the safe, which promotes daily use of the safe. It also takes more sophisticated tooling to manipulate a basic electronic lock. Most have a lockout time period of five to fifteen minutes each time three wrong combinations are tried. In addition, some locks can handle multiple combinations and maintain a log of when the safe was opened and which combination was used to open it.

For the most part, Type I electronic safe locks are superior to mechanical locks, with one important exception: ***When electronic locks do fail, they fail without warning and you have to get into the safe manually (that is, you will have to hire a professional to break into your safe).***

Old mechanical locks, in contrast, usually give the user a little warning before they fail in the form of a rough feeling dial. That said, many electronic locks last twenty years or more without failure. It's best to contact the locksmith company that would most likely help you get back into the safe if there is a failure and ask its experts for their opinions about which brands of electronic locks they recommend.

**UL specifies only one rating, Type I, for electronic locks.** To get this rating, the lock must have specific build specifications:

- The combination is kept in the part of the lock inside the safe to prevent a thief's changing the external parts of the safe, replacing them with a known combination unit.
- The lock combination is stored electronically in some form of Non-Volatile Random Access Memory (NVRAM), so that if the battery dies or is removed, the locking mechanism won't erase the memory and the code, locking out the rightful owner of the safe.
- The lock itself---not the keypad---has to initiate the drawback bolt. Again, this is so that the keypad can't be replaced or the wire cut and random voltage input signals delivered to the wires to compromise and open the lock.
- The batteries must be located outside the safe to prevent the rightful owner of the safe from being locked out through power supply failure.

### **Built-in Safes**

In addition to the burglar container safes that described above, another safe option is safes that are built into structures such as homes or offices. If you would like to have a safe built in, a little forward planning with a contractor can go a long way. Wall safes, floor safes and entire safe rooms can all be easily constructed during the initial construction phase of the house. A pre-manufactured door can be added afterwards, and the performance and construction ratings would apply to the door alone.

## Fire Ratings

It might also be worth looking into the fire rating of the safe. Many fire safes have minimal burglar resistance, and many burglar safes have minimal fire resistance, but there are a couple of models that offer both.

UL offers a two-part performance rating for fire resistance. The first part gives the temperature and the second part gives the time exposure that standardized contents were able to survive. For example, if a safe is rated a UL Class 350 One-hour safe, it withstood 350 degrees Fahrenheit for one hour before breaking down.

## Six Questions You Must Answer Before Buying a Safe

1. What will be stored in this container?
  - a. What are the size requirements for the inside of the safe? (What volume do I need?)
  - b. What is the market and personal value of it? It makes no sense to keep \$1M in a \$500 safe or \$20K in a \$10K safe.
2. Where will the safe be kept?
  - a. What are the size requirements on the outside of the safe?
  - b. How much can it weigh and still safely be moved into place?
  - c. Can the floor hold that weight of the safe and whatever contents you would like to store in it?
3. How many people will be using it?
  - a. Does it need to have multiple combinations and an electronic tracking system?
4. How frequently will the door need to be opened?
  - a. Will it need to be opened every 15 minutes (in which case an electronic lock might be preferable) or every 30 days (in which case a simple dial might work fine)?
5. Are there any insurance benefits to upgrading to a safe with a higher security rating?
  - a. In some cases, significant insurance breaks can be realized or coverage can be increased based on UL performance ratings
6. How far away is the nearest response to an alarm signal?
  - a. If the police response time takes more than 45 minutes, you probably need to go with a higher rather than lower rating.

Finally, remember that **the most secure safe is the one no one knows exists.**