As you were conducting your annual home inspection and cleaning, you notice a few cracks in your home's foundations. You're sure that these are fairly new as you never saw these during your previous inspections.

Now, you are worried about your family's safety (and the projected expense of fixing this issue.)

Before finding out how to fix cracks in your foundation, it is worthwhile to tackle a few issues first, allowing you to make an informed decision.

What causes foundation cracks?

Foundation cracks can happen even in homes that are well-built and maintained properly. The key here is identifying potential causes and knowing exactly how to repair foundation cracks.

Cracks in your foundations can occur due to a variety of reasons. Among the leading causes of this problem are:

- Earthquakes
- Poor construction quality
- Frequent temperature changes
- Soil quality (too loose, too wet, or too dry)
- Poor drainage
- Flooding

Among these possible causes of foundation cracks, flooding is the most common.

Types of cracks in your foundation

Cracks in your foundation can be broadly classified into three types:

Settlement

This type of foundation crack is the most common type of foundation crack, occurring in most houses.

In some cases, the damage is fairly minimal and cosmetic in nature. However, you should watch out for other symptoms like bowing walls and sloping floors, indicating a larger

problem at hand.

Shrinkage

Shrinkage foundation cracks are commonly found in homes that have been built using poured concrete.

Horizontal

Changes in the soil or water pressure can lead to horizontal cracks.

Active vs. passive cracks

Foundation cracks can also be classified either as active or passive.

Active cracks in your foundations refer to cracks that actively change over time. The severity of the foundation cracks can vary due to ground movements or weather conditions.

Passive cracks, on the other hand, are relatively stable foundation cracks, rarely changing in severity. More often than not, the cracks stop expanding once the home has stabilized, typically during the first two years after construction.

Repairing a foundation crack

When you are planning to repair the cracks in your foundation, there is one important thing that you need to decide upon: fix the cracks from the inside or outside.

There is no consensus on which approach is better. However, some experts tend to recommend fixing foundation cracks from the outside because the effects are long-lasting. On the other hand, fixing foundation cracks from the inside is often seen as a temporary solution.

Small passive foundation cracks can be repaired from the inside. However, if the cracks in the foundation are active, the better option would be to fix these from the outside.

Common materials used for fixing foundation cracks

Epoxy and polyurethane are two of the most common materials used in repairing cracks in the foundation. Here’s a brief look at each.

Epoxy

Epoxy or epoxy resins refer to a type of glue used to fix cracks in a home's foundation. The material acts as glue and prevents further movement in the cracks by filling the space.

If your home is still moving, an epoxy might not be able to prevent the formation of new cracks.

The main advantage of using epoxy is that the material doesn't change the look of the foundation or your home. Ideally, it should be used when fixing the cracks of a foundation from the inside.

Another benefit of using epoxy is that it does not require excavation around the site. This means that you do not need to use heavy machinery in repairing cracks.

Polyurethane

Polyurethane is a type of sealant known for its high resistance, strength, and durability. It can even withstand a high amount of movement.

Polyurethane is hydrophilic. This means that the material reacts to moisture, making it ideal for repairing cracks caused by water. This is because polyurethane forms a strong bond that creates a waterproof coat.

Polyurethane is applied to cracks in the foundation through injection using a hydraulic pump. The use of a hydraulic pump enables the material to fill the deepest surface of a crack.

However, polyurethane can only be used for smaller cracks. For example, if the crack measures more than an eighth of an inch, sealing might not be the best option.

Repairing cracks using the injection technique

Should you decide to repair the cracks using the injection technique, you will need a few tools and products.

These include:

- Hydraulic pump

- Polyurethane
- Bristle brush
- Shovel
- Drill
- Clamps
- Waterproofing membrane

The repair starts by excavating around the foundation, either manually or through the use of machines.

Once the area has been excavated, the debris must be removed. Afterward, holes are drilled at a 45-degree angle. This will facilitate the quick injection of polyurethane.

After the polyurethane has been injected, the inside of the crack needs to be cleaned with water. The water also helps bring up the level of humidity in the foundation.

In some instances, clamps or steel plates need to be used. Finally, you will need to apply a waterproofing membrane to seal water out.

Not all cracks need immediate action

Although most cracks are unsightly, not everything requires immediate attention or action. You can simply leave these untreated without cause for worry.

For example, cracks in brick foundation walls often happen when the bricks are applied directly to the foundation. In addition, the bricks often expand during the summer as the temperature rises.

Cracks found on windows and doors are often seen as a sign of settlement, especially when these are found in relief joints. Usually, these cracks happen due to fluctuations in the temperature. The use of a dehumidifier can remedy this problem.

Hairline cracks on the floor are rarely a cause for concern, especially cracks that are smaller than half an inch.

As for foundation cracks, active monitoring is essential as these can lead to structural issues in your home.

At the first sign of a vertical or horizontal crack in the foundation, consult a qualified

professional for the best course of action.