

## Why Concrete Cracks

### From ConcreteNetwork.Com

One of the most common questions received on ConcreteNetwork.Com is about cracks that are developing in newly poured concrete. The homeowner will question why it is cracking and did they receive a shoddy job.

When installed properly, concrete is one of the most durable and long lasting products you can use around your home. But it is important that concrete contractors follow well-established guidelines with respect to concrete placement. Durable, high strength, and crack resistant concrete does not happen by accident.

### **Why Concrete Cracks**

#### **Reason #1 - Excess water in the mix**

Concrete does not require much water to achieve maximum strength. But a wide majority of concrete used in residential work has too much water added to the concrete on the job site. This water is added to make the concrete easier to install. This excess water also greatly reduces the strength of the concrete.

Shrinkage is a main cause of cracking. As concrete hardens and dries it shrinks. This is due to the evaporation of excess mixing water. The wetter or soupiier the concrete mix, the greater the shrinkage will be. Concrete slabs can shrink as much as 1/2 inch per 100 feet. This shrinkage causes forces in the concrete which literally pull the slab apart. Cracks are the end result of these forces.

The bottom line is a low water to cement ratio is the number one issue effecting concrete quality and excess water reduces this ratio.

#### **What you can do about it**

Know the allowable water for the mix the contractor is pouring- or be very sure you have chosen a reputable contractor who will make sure the proper mix is poured. It is more expensive to do it right- it simply takes more manpower to pour stiffer mixes.

#### **Reason #2 - Rapid Drying of the concrete**

Also, rapid drying of the slab will significantly increase the possibility of cracking. The chemical reaction, which causes concrete to go from the liquid or plastic state to a solid state, requires water. This chemical reaction, or hydration, continues to occur for days and weeks after you pour the concrete. You can make sure that the necessary water is available for this reaction by adequately curing the slab.

#### **What you can do about it:**

[Read here about the methods to cure concrete and understand how your contractor will cure the concrete.](#)

**Reason #3-** Improper strength concrete poured on the job

Concrete is available in many different strengths. Verify what strength the concrete you are pouring should be poured at. Talk to the ready mix supplier

**Reason #4** - Lack of control joints.

Control joints help concrete crack where you want it to. The joints should be of the depth of the slab and no more than 2-3 times (in feet) of the thickness of the concrete (in inches). So 4" concrete should have joints 8-12' apart.

[Read more about control joints here.](#)

**Other reasons:**

Never pour concrete on frozen ground.

The ground upon which the concrete will be placed must be compacted.

The sub grade must be prepared according to your soil conditions. Some flatwork can be poured right on native grade. In other areas 6" of base fill is required along with steel rebar installed in the slab. Understand what your contractor is doing about each of the above listed items and you will get a good concrete job.