There is nothing more fun than celebrating Independence Day with a backyard barbecue and friends. Likewise, these celebrations would not be complete without fireworks - the loud bangs and crackles of an amazing set of colors in red, white and blue. Have you ever stopped to think about the impact of fireworks to our air quality, personal safety and property?

**What Is In A Firework?**

To make red, white and blue fireworks, manufacturers create the explosives with strontium compounds, magnesium and dioxin-laden copper mixtures. There’s also toxic barium for green, sodium nitrate for yellow and a mix of calcium compounds for orange. These are just a few of the chemicals released into the air by fireworks displays and breathed in by people. The chemicals enter the lungs and can be problematic for people with asthma or cardiovascular problems.

Also, fireworks can cause a spike in a community’s poor air quality. Particularly, the concentration of very small airborne particles due to the reaction of charcoal, calcium and sulfur compounds that combust and release a smoky cloud. Independence Day fireworks can release enough pollutants to break the EPA particulate matter air quality threshold, which is
based on the number of days in which the PM 2.5 average reading of small particulates exceed 35 micrograms per cubic meter.

Fireworks And Your Health

Fireworks can also lead to personal injuries that result in emergency room visits. In 2012, U.S. hospital emergency rooms treated nearly 8,700 people for fireworks related injuries. According to the Centers for Disease Control and Prevention (CDC), fireworks can cause burns, lacerations, contusions, foreign objects in the eye and even death. Few can forget the fireworks explosion on Ocracoke Island back in 2009 that killed three people. One report of seven states revealed that the total cost for injuries attributed to fireworks is estimated to be at $1.4 million.

![Infographic](https://via.placeholder.com/150)

**Most Injured Body Parts**

- **12%** Eyes
- **19%** Heads, faces and ears
- **15%** Trunks
- **41%** Hands and fingers
- **13%** Legs

**Injuries by Fireworks Type**

- More than **HALF** the injuries were burns.

*Infographic courtesy of the U.S. Consumer Product Safety Commission*

Additionally, fireworks have the potential to cause fires. For example, sparklers can reach 1,800°F (982°C) — hot enough to melt some metals. Even after a firework goes off, it can still be ignited and can explode at any time. According to the National Fire Protection Association (NFPA), fireworks were the cause of an estimated 17,800 fires in 2011, and $32 million in direct property damage. In fact, there are more fires reported on Independence Day than any
For pet lovers out there, keep in mind that animals have sensitive ears and can be extremely frightened or stressed by fireworks. July 5 tends to be the busiest day of the year for animal shelters from pets that have fled from panic. It’s best to keep pets indoors to reduce the risk that they’ll run loose or get injured.

**So What Is The Law In North Carolina?**

North Carolina allows fireworks that don’t leave the ground or fly in the air. For example, poppers, sparklers and fountains are all legal, but fireworks that spin on the ground, roman candles, bottle rockets and any aerial fireworks are illegal.

Viewing fireworks from a public display is still the safest way to enjoy fireworks on Independence Day. Make it a fun, memorable and safe holiday.

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What interests you about the natural and built environments in our state? [Let us know](mailto:Let us know), and it could be a topic for a future IEI Environments newsletter.