U.S. 321 WIDENING
BLOWING ROCK

Facts and FAQ's About Modern Blasting

What You Should Know About Modern Blasting Work

It is natural for residents and property owners to have concerns and questions about the safety and potential impacts of blasting. Unlike special-effects scenes in movies showing wild and violent explosions, commercial blasting is very controlled and carefully regulated.

Blasters are well trained and use state-of-the-art equipment and techniques to ensure precise and safe blasting, with minimum disruption to surrounding property. Blasting practices and blast effects like vibration and noise are also controlled by stringent federal and state regulations, and further restricted by project-specific regulations. That is the case regarding the U.S. 321 widening project in Blowing Rock.

Limiting Noise and Vibration

The noise level on this project will depend on the proximity to the blast. People will most likely hear more of an extended "popping" sound rather than a loud bang. The contract has specifications that limit vibration and noise levels associated with the blasting to well below damage-inducing levels. People may feel the vibration, because we are extremely sensitive to them, but it should not cause damage to homes and businesses. They may slightly rattle dishes and disturb pictures, in much the same way as a thunderclap would. Thunderclaps, wind gusts and normal environmental conditions like temperature and humidity changes create stresses in building materials that are typically much greater than those caused by blast effects.

Care also will be taken to monitor blast vibrations at the nearest structures. If vibrations exceed a set warning level, steps will be taken to reduce the vibration for future blasts. Vibrations that occur below regulated levels will not cause any structural damage. They may slightly rattle dishes and disturb pictures, in much the same way as a thunderclap would.

Monitoring to Protect Nearby Property

Seismographs are used to measure actual blasting effects near adjacent property. These sophisticated instruments measure ground vibration and blast-noise or airwaves.

Ground vibration is measured in inches per second, while noise is measured in decibels or pounds-per-square-inch (psi). After each blast, seismograph readings are examined to ensure blast-induced vibration and noise are within the specified limits.

Blasters modify blast designs as needed to ensure that the levels of vibration and noise stay within proper limits. Seismographs capture very specific graphic signatures of blast vibration and air-noise that are printed out and kept in files.

What You Will Hear Before a Blast

Five-Minute Warning: A series of long horn blasts.

One-Minute Warning: Short horn blasts, separated by short pauses.

All Clear Signal: A prolonged horn blast following inspection of the blast.

Frequently Asked Questions About Blasting

Q. Why is blasting necessary?

A. When excavating hard rock for construction work in an area such as Blowing Rock, blasting is the only practical way to break the rock so it can be excavated.

Q. What prevents a blaster from using too much explosives?

A. Blasters and supporting professionals strive to design blasts that produce vibration at levels well below the government's mandated or project-specified limits. They will notify residents about blasting times and schedule blasting so it does not startle people during quiet times of the day or evening.

Q. How much vibration will I feel if my house or business is near the blast site?

A. Surprisingly, normal household or office activity like heavy footsteps or a slamming door will generally produce higher vibration readings on a seismograph than a nearby blasting operation will. The human body, however, does detect extremely low levels of motion, so you may feel vibration from blasts and hear some noise. Sometimes, minor vibration is caused by airwaves, which may rattle doors and windows. These forms of vibration and noise are normally as harmless as comparable vibration generated by routine activity occurring in your home or office.

Q. How do you know the seismograph used to measure the vibration levels is accurate?

A. The accuracy of seismographic instruments is extremely important. Having accurate and complete records protects everyone's interests. Reliable data provides proof that blasting is being done legally and responsibly. Seismographs are thoroughly tested by the supplier before they are approved for use in the field, and each year they are returned to the manufacturer for re-calibration and certification. In addition, each time seismographs are used, it performs an automatic self-test that verifies the instrument is working properly.

Q. Does a blaster really have control over how much vibration and noise is generated by the explosives?

A. Certain factors are outside the blaster's control, including the weather, the slope of the land and certain geological conditions. These can affect noise and vibration levels, so blasters and engineers are trained to anticipate their effects and adjust the blasting controls accordingly. The primary factors affecting vibration and noise are within the blaster's control. These factors include the size of the explosive charges, their confinement in the rock and the timing sequence used to delay them.

Noise Level Comparisons

Decibels	Noise Source
30	Soft Whisper
40	Refrigerator
50	Light traffic
60	Air Conditioning
70	Vacuum Cleaner
80	Average City Traffic
90	Lawn Mower
100	Garbage Truck
130	20 MPH Wind / **U.S. 321 Project Limit**
133	Blast Noise Limit
140	Jet Plane or Thunderclap
180	Rocket Launch

If you have any questions concerning blasting, please contact Project Manager Chris Byers of Taylor & Murphy Construction Co. Inc. of Asheville at (828) 667-4526.

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