

# CLOSE-IN CONSTRUCTION BLASTING-IMPACTS AND MITIGATION MEASURES

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## ABSTRACT

This paper will discuss the mechanisms of potential damage from close-in construction blasting, concentrating on two mechanisms: elastic ground vibrations and non-elastic (permanent) ground deformations. The latter will be shown to be the most dangerous for close-in blasting. With respect to elastic ground vibrations, discussion will center on the differences in vibration frequencies and impacts between typical close-in construction blasting and typical mine and quarry blasts, and how using vibration criteria derived for residential structures near mines can lead to very conservative criteria for close-in construction blasting. The effects of high frequency vibrations seen in close-in blasting will be commented on. Factors affecting the magnitude of ground motions will be discussed. Simple, practical techniques will be presented to minimize the potential for damage from close-in blasting, by minimizing the potential for rock block movement or ground heave. Case histories will be presented to illustrate some of the techniques discussed, and give examples of successful close-in blasting projects.