



APPLIED SCIENCE INTERNATIONAL SUCCESS STORY

NITERÓI HOSPITAL DEMOLITION

Santa Monica, Brazil, 2012

Assuring City Managers, Engineers, and Neighbors Using Engineered Analysis

On November 2, 2012, Fábio Bruno Construções safely performed the implosion of three reinforced concrete buildings with 7, 6 and 5 stories respectively in the city of Niterói in Brazil. The buildings belonged to the former Santa Monica Hospital that had been out of use for over 10 years. There were many elements that needed to be analyzed.



The close proximity of adjacent buildings and homes, large power cables, and the busiest street in Niterói a mere 30 feet down a slope from the former hospital raised considerable concerns prior to the implosion.

Applied Science International (ASI) assisted in designing the implosion sequence. The primary goal of the design was to ensure that debris from the implosion fell toward the center of the buildings footprint, rather than along its edges. To achieve this, several scenarios were studied to decide which columns were to be loaded with explosives and which should be left uncharged, as well as the exact delay and sequence of the column removal.

To protect the street's power grid, railway sleepers were used to anchor the transmission poles in the street. This served to contain the spread of material from the implosion.

Given that the distance was less than 2 meters (6.6 feet) in some instances, the plan helped to protect the pole from possible scattering.

Special attention was given to the florist located next to the building. The more sensitive and the more expensive flowers were transported to a field 1 kilometers (0.6 miles) away from the site. For flowers that were not transported to the field, a canvas cover was erected three hours before the implosion and removed immediately after.

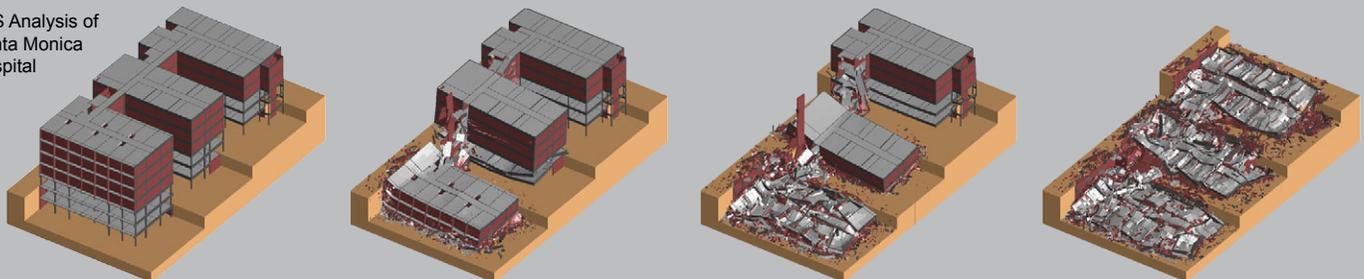
The implosion occurred without incident at 8:00 am, exactly on time. No power cables were damaged, no cracks were observed in any of the adjacent buildings, and all the debris was contained inside the building footprint as predicted. The peak particle velocity recorded by seismographs was below 3 mm/s, which was safely below the maximum limit of 15 mm/s allowed for by Brazilian standards.



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ELS Analysis of Santa Monica Hospital



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