



APPLIED SCIENCE INTERNATIONAL SUCCESS STORY

# CHARLOTTE COLISEUM DEMOLITION

North Carolina, USA, 2007

## *Accurate Engineered Analysis Performed Prior to Extreme Loads*

The Charlotte Coliseum was demolished in a spectacular 13-second implosion, leaving only a pile of metal, concrete, and rubble. Applied Science International contributed significantly to the success of this event using its breakthrough technology and software, Extreme Loading® for Structures (ELS).



Charlotte Coliseum during demolition.

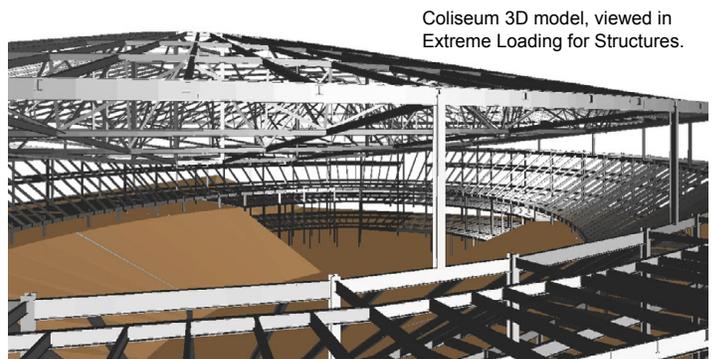
ELS, is an advanced non-linear structural analysis software tool designed specifically for structural engineers. ELS allows structural engineers to study the 3D behavior of structures through both the continuum and discrete stages of loading. This includes static and dynamic loads such as those generated by blast, seismic events, impact, progressive collapse, and wind.

Using the original construction plans, ASI modeled the coliseum structure taking into consideration all of the structural members including the steel columns and girders, reinforced concrete slabs, and the dome truss system. During the modeling and simulation phase, all of the demolition preparations and existing conditions were incorporated, for example the sloped terrain, the cuts and v-cuts in the steel sections and columns, the weakening of the structure, and the precise timing of the removal for column groups and dome elements. With the detailed 3D model created and

loading scenario inputted, ASI's engineers were able to run multiple simulations that showed how the structure would behave during demolition.

Prior to the live implosion, ASI submitted the analysis report, complete with full-length videos of the demolition occurring from multiple angles, to the developer, the general contractor and the demolition contractor, Dykon Blasting Corporation. The analysis provided by ASI was used to aid in the planning of the actual demolition giving the demolition team the insight needed to make modifications to the original explosive ordinance sequencing. Additionally, the report and associated videos and images provided assurance to the developer, contractor, and the public regarding the safety of the demolition plan.

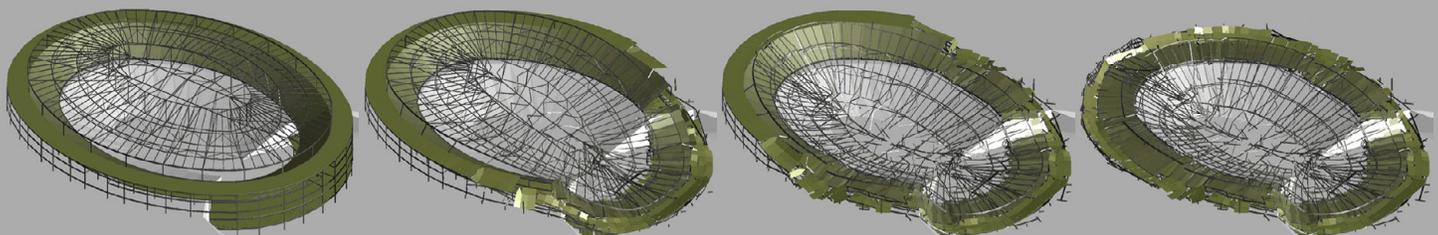
The Charlotte Coliseum demolition was a historic cap stone project for ASI's Extreme Loading® Technology, proving its ability to accurately predict the behavior and potential progressive collapse of a structure subjected to both natural or man-caused extreme loads.



Coliseum 3D model, viewed in Extreme Loading for Structures.

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ELS video images.

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