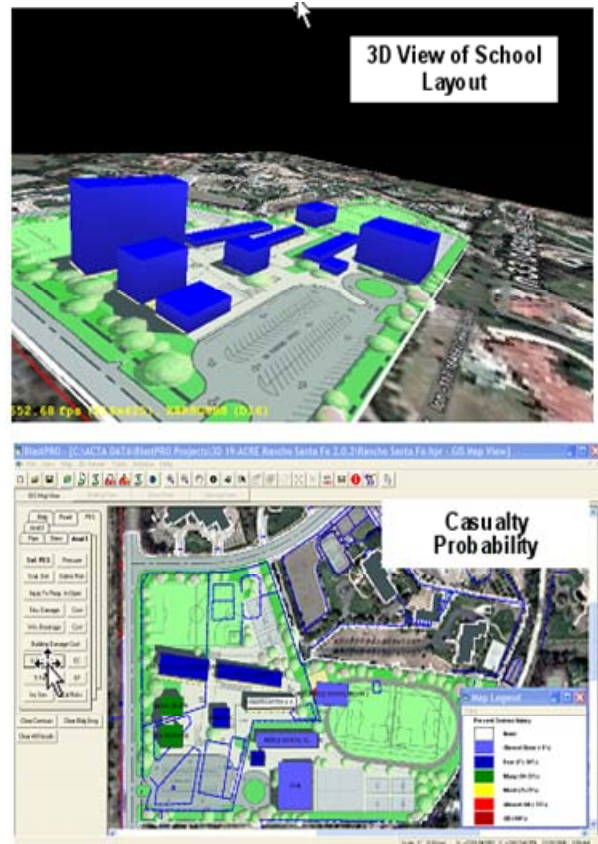
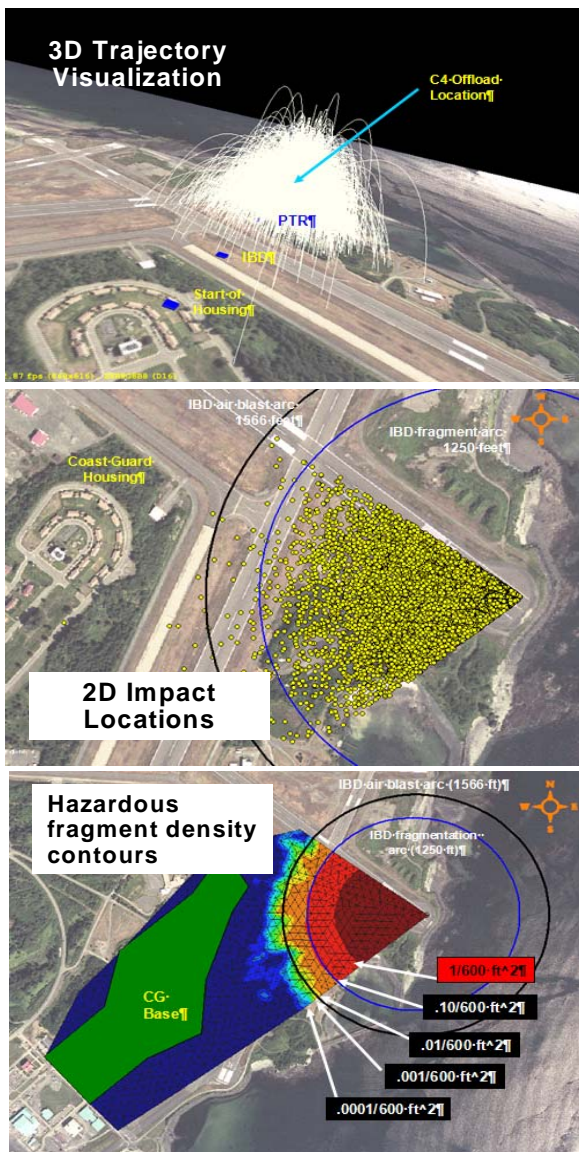


Our HAZX code offers a unique capability to perform complex fragment throw analyses. Given information that defines the characteristics of fragment groups, including uncertainties in their characteristics, full 3D physics-based simulations of fragment throw resulting from a blast can be performed. HAZX allows a user to define 3D representations of terrain/barriers and extrude 3D building objects and vehicles that could be impacted by fragments. The figures below show HAZX's simulation of Trident Stage 1 and 2 motors exploding during a C-17 offloading operation.

HAZX's fragment module allows a user to visualize fragment throw simulations in 3D and provides added information such as fragment ground impact locations, hazardous fragment density contours and the expected number of impacts to a building's walls, roof and windows and their effects on building occupants.

HAZX includes a module to perform hazard and risk analyses due to a gas pipeline explosion. As stated, a user can enter 3D representations of buildings and define wall, roof, and window and occupancy data. The pipeline can be drawn using the HAZX linear pipeline modeling tool. HAZX then performs a blast analysis assuming an explosion occurs at the worst location relative to buildings, or a risk assessment assuming an explosion is equally likely to occur at any point along user defined pipeline segment(s). We use HAZX to perform gas pipeline explosion analyses for the California Department of Education (CDE). The figures below show an example of a HAZX CDE risk analysis that was required for a school expansion project. We are on the approved list of CDE contractors to perform explosion risk analyses.



ACTA also developed the BlastCAT code that allows air blast analyses to be performed on detailed representations of buildings. BlastCAT meets the General Services Administration (GSA) requirements for assessing window performance subjected to blast loading. As shown in the figures below, BlastCAT allows a user to construct a detailed model of a building including structural elements and different types and sizes of windows. The user can then position explosion sources at any external location relative to the building. BlastCAT computes the reflected overpressure and impulse on each structural and window element and determines its damage state.

BlastCAT allows a user to visualize the blast loading on a building by providing color contours as shown in the prior figures. The effects of blast loading on windows are displayed by color coding each window according to GSA performance guidelines.

Services

ACTA performs explosion hazard and risk assessments and provides explosion assessment tools to a wide range of clients including the Air Force, Army, Navy, NASA, DDESB, petrochemical facilities and California schools.

Products

We license our explosion effects software, HAZX and BlastCAT, to a number of U.S. government and commercial clients and provide training in their use..

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