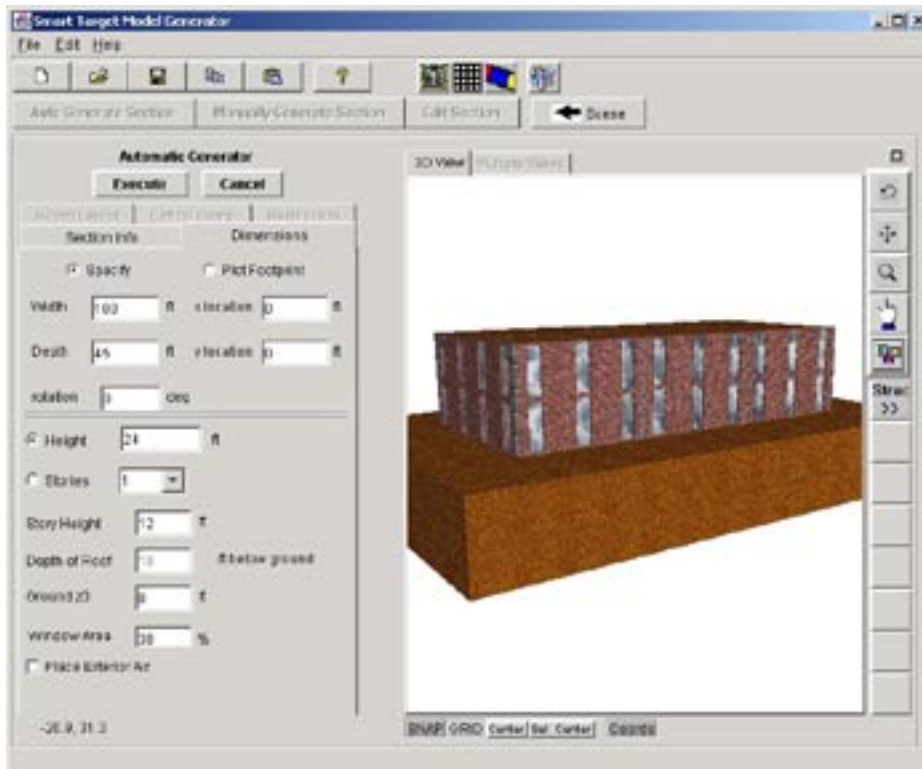


Air Force
SBIR

Transition Impact

Smart Target Model Generator



- **Rapid generation of target models is vital for lethality/vulnerability weapon effectiveness simulations**

- **Smart Target Model Generator (STMG) offers quick and automatic creation of 3-D generic building models based on construction type, function, and dimensions**

Air Force Requirements

The Air Force Research Laboratory's (AFRL), Munitions Directorate, Lethality and Vulnerability Branch (AFRL/MNAL) provides expeditious weapons effectiveness analyses of several weapons concepts against various types of buildings that may be potential target types. A building model must be generated before weapon effectiveness analysis can be performed against ground-fixed target sets. The Air Force needed target modeling tools that provide the rapid generation of target models necessary for rapid turn-around lethality/vulnerability weapon effectiveness simulations.

SBIR Technology

Applied Research Associates (ARA) was awarded a Small Business Innovation Research (SBIR) contract to develop a 3-D target model generation tool for use in weapon effectiveness evaluation. ARA developed the Smart Target Model Generator (STMG) to aid in the rapid generation of target models using engineering rule-bases to quickly and automatically create generic buildings based on the building construction type, function, and dimensions. STMG allows users who are not engineers or architects to rapidly build a structurally valid model while providing the engineering properties needed for weapon effectiveness studies.

Air Force Transition Payoff

STMG has grown from a support tool for AFRL/MN to a general purpose building model generator. The initial project was so useful that the market forces have since driven its growth until the software has essentially become the defacto standard for 3-D building models used for weapon effects analysis. Today STMG supports a number tools used for vital weapons effectiveness analysis including

- The Modular Effectiveness/Vulnerability Assessment (MEVA) tool which is being used, as a prototype, to develop targets for the PenCur penetration assessment tool supported by Waterways Experiment Station.
- STMG provides the target models used for the above-ground building damage assessments for the Joint Munitions Effectiveness Manual for Windows (WinJMEM) tool used to calculate weapon effects on various kinds of targets.
- STMG is used to create targets for both ground-fixed target weapon effectiveness and sensor models in the Integrated Sensor Modeling and Effectiveness Tool (ISMET) currently being developed by AFRL Space Vehicles Directorate to perform sensor performance and target recognition tradeoff studies in conjunction with weapon effectiveness assessments.

SBIR Topic:

AF 98-223

Title:

Smart Target Model Generator

Contract #:

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Eglin AFB, FL**Transition Office:**AFRL/VSEB, Kirtland AFB, NM,
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