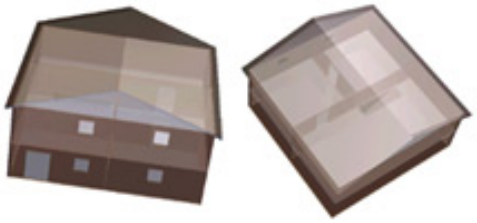
US Army Corps of Engineers®
Engineer Research and Development Center

Rapid Building Generation for Military Simulation Programs

Technology



The ERDC Information Technology Laboratory has developed the Rapid Building Generation (RBG) computer program to rapidly generate the external/internal spatial characteristics of a multistory building in the formats needed for inclusion in military simulation programs. The program uses commercial off-the-shelf CADD software to generate the building geometry from blueprints or two-dimensional CADD files. The RBG program processes the resulting three-dimensional (3-D) visual representation of the building contained in a 3-D DXF CADD file to extract necessary structural geometry and building topology. Additional attribution of the model is added to support the ultra-high resolution building (UHRB) data required by the OneSAF Objective System (OOS). The generated building information currently supports both the compact terrain database (CTDB) multi-elevation surface (MES) format used by legacy systems such as ModSAF and the XML format used by OOS (Build B, release 22).

Problem

Current military simulation programs such as OOS must support military operations in urban environments. These environments require the representation of buildings with interiors. Presently, the modeling effort required to produce a building with interiors is time consuming and subject to human error. A multistory building is particularly difficult to model in the required format for use within OneSAF. Therefore, a rapid process to model buildings with interiors is needed.

Expected Cost To Implement

The RBG computer program runs under the Microsoft Windows operating system (98/2000/XP) and is distributed to qualified Government users free of charge in a self-contained setup program. No additional software is required to run RBG other than the Windows operating system. CADD software is required to produce the 3-D building geometry that RBG processes. Low-cost (approximately $40) home design packages may be used with RBG.

Benefits/Savings

Rapid modeling of buildings will allow more efficient generation of databases, faster response time for training scenarios (e.g., special forces operations), and the ability to provide urban databases for urban warfare scenarios more quickly. Also, richer attribution of the model will allow enhanced structural response predictions and better visualization of structural damage.

Status

The RBG program is currently available as version 0.9.26 released in April of 2004. RBG comes with a short how-to and example files.

ERDC POC

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Distribution Sources

Requests for copies of the software may be sent to Mike.E.Pace@usace.army.mil.