What the innovation is
Tools to assist in planning for safer environments. The process for planning safer environments is approached from a point of view of proper design and planning. It is related to the entire design and construction sequence and should not be an afterthought. The SHiP Group - Force Protection Tools (FPT) are an integral set of tools that are used in the entire design and construction sequence. The basis for the tools are that they be used along with a Building Information Model (BIM) model of the project, which is a three dimensional model that simulates everything about the construction. The tools allow us to accurately simulate and create threat analysis recommendations based on real world data. Having the BIM model used as the basis for threat analysis links the analysis to accurate data, rather than being a “one off” report of a static system.

Successful system function requires four major components:

1. Accurate Three Dimensional BIM Model
2. Accurate security and building data
3. Knowledge and experience assembling building data while applying construction and security related recommendations using these tools
4. Ability to identify process in traditionally disparate fields, find the common thread, then integrate the processes and needs into the same system

The BIM model of a project is used to place the FPT objects that define various security planning scenarios. The FPT objects store the information that is used for creating analysis, reports and three dimensional views of the results. One part of FPT is Threat Objects which carry hard data about the blast type, direction, and threat. BIM carries data about a building facility. The BIM model and threat objects are the basis for threat analysis of accurate facility data that allow the simulation of real world threats and their consequences.

The tools presented in this system are limitless in their potential. These tools cut out the mundane work required in a comprehensive security planning process. They can be used to quickly and accurately assess real world threat scenarios and create limitless "what if" analyses.

Why is it innovative?
FPT combines the knowledge of seemingly disparate fields into the process of designing and managing new facilities. It makes security planning tools available throughout the entire process and becomes the foundation for integrating planning with security.

Our environment shapes us. If we are to design and construct new environments, it makes sense to be closely aware of what is being designed before construction starts. Shaping the environment to make it a safer place is what FPT can be used for. The principles of Crime Prevention Through Environmental Design (CPTED), coupled with Response Enhancing Design (RED) are integral to FPT. These standards are recognized by many agencies. Visualizing the standards using FPT allows clearer decision making process before any construction starts.

What is changed or replaced
What used to take several months to accomplish can now be completed in weeks. Decisions relating to security planning can be made based on standards and tested against the model using FPT. Scenarios can be created against the models to test “what if” situations.

The key point is that this process of using the BIM model for FPT is not a single use scenario. The same BIM model used for design and construction can also be used for facility management. The biggest value is there is no replication necessary from the BIM model to use the FPT. What has traditionally been a separate effort can now be all part of the design and construction process. Although FPT is a three dimensional based system, it is not intended to be focused on creating “Hollywood” style special effects. The focus is on using the system as a tool and on generating results that facilitate the decision making process.

Where and when it originated, has been used, or is expected to be used in the future
The concept of using the BIM model for tasks beyond visualization and planning has been used since 1994. The Object Genome Project of creating systems for design and construction are part of the FPT. The same concepts of creating systems for building components also apply to security planning. FPT is currently being used on projects. FPT’ strength is its synthesis of knowledge, software, databases, and processes into one decision making system.

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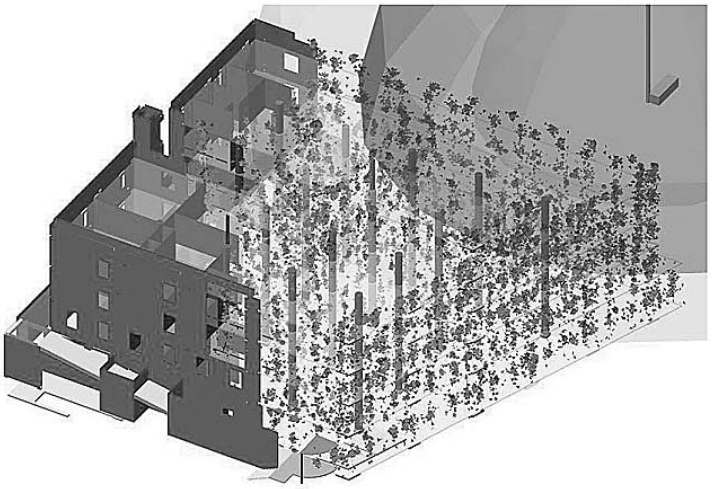
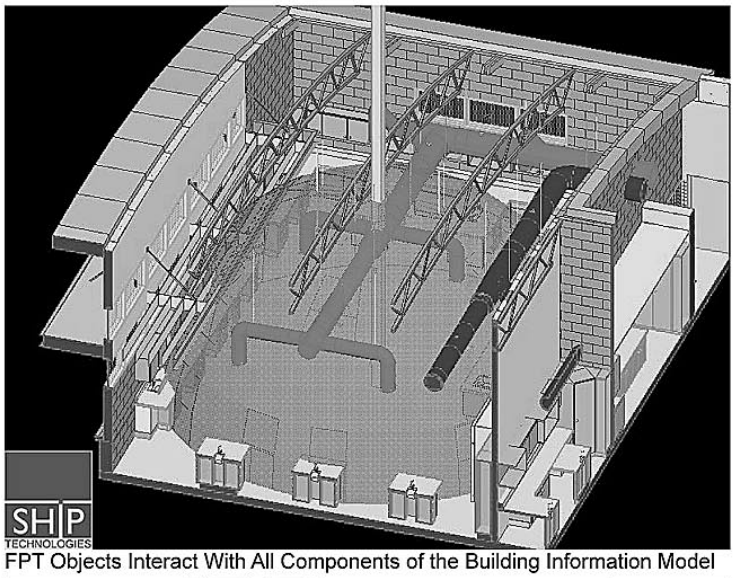
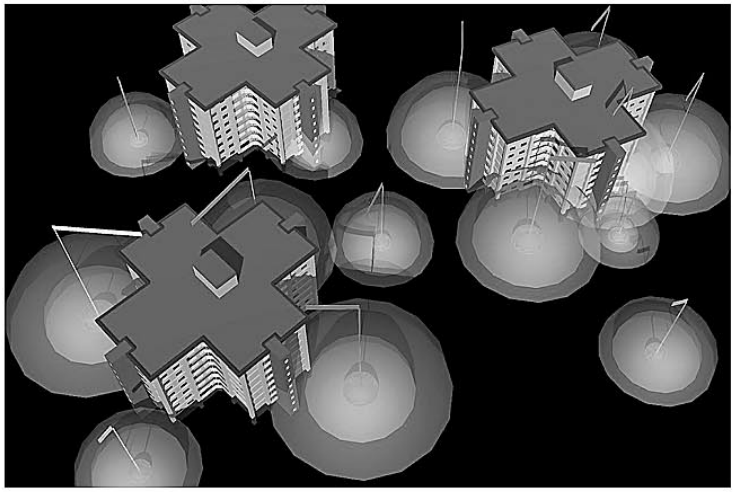
SHiP Group - Force Protection Tools TM (FPT)



FPT Bomb Object Interacting With Building Outputting Data of Damage

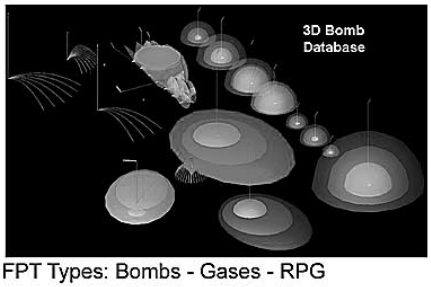


FPT Objects Interact With All Components of the Building Information Model



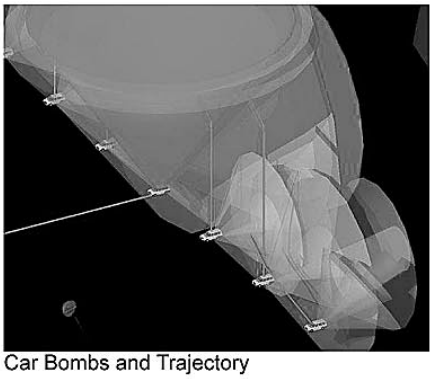
FPT Bombs Use a Database of Damage Spheres to Interact with BIM

Threat Objects Placed and Detonated

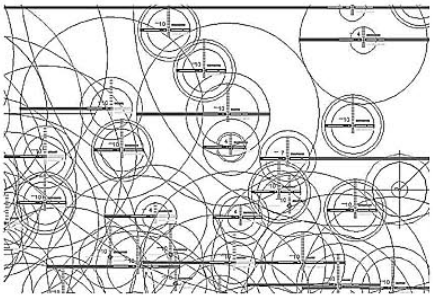


FPT Types: Bombs - Gases - RPG

FPT Bomb Placed on Corner of Building



Car Bombs and Trajectory



FPT Scenarios Data Saved in Plan VIew