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# CPRC

CANADIAN POLICE RESEARCH CENTRE



# CCRP

CENTRE CANADIEN DE RECHERCHES POLICIERES

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## TM-02-96 3D EYEWITNESS

By: Sergeant Ken Bullock

### TECHNICAL MEMORANDUM

Submitted by  
RCMP Forensic Identification  
Research & Review Section

November, 1995

NOTE: Further information  
about this report can be  
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## EXECUTIVE SUMMARY

The Canadian Police Research Centre purchased the 3D Eyewitness software for evaluation purposes following an initial evaluation of the demo software provided by an American company.

Sergeant Ken Bullock of the RCMP Forensic Identification Research & Review Section in Ottawa consented to evaluate the software for one segment of police applications. The circumstances under which this software was evaluated proved interesting, and useful. The software appears to have beneficial advantages for use in the police environment. However, before recommending that its use be considered as a tool in the police community, he recommends that field testing in an operational environment take place. This software will be offered as recommended.

3D Eyewitness software was purchased from:

Design Ware Inc.,  
17 Main Street, Watertown,  
MA 02172  
phone (617) 924-3844, fax (617) 924-1699.

Cost was \$149.00 US funds plus \$5.00 shipping.

## SOMMAIRE

Le Centre canadien de recherches policières a acheté le logiciel 3D EYEWITNESS pour l'évaluer. On avait fait une première évaluation du démonstrateur fourni par une firme américaine.

Le serg. Ken Bullock de la Section des recherches et des études en identité judiciaire avait évalué le logiciel en tenant compte d'un seul aspect du travail policier. Les circonstances qui ont entouré l'évaluation se sont avérées intéressantes et utiles. Il semble que ce logiciel pourrait offrir de nombreux avantages à la police. Toutefois, avant de recommander son utilisation, le serg. Bullock aimerait qu'on effectue des essais sur le terrain en milieu opérationnel. Ce logiciel sera offert tel qu'il aura été recommandé.

On peut se procurer le logiciel 3D EYEWITNESS en communiquant avec :

Design Ware Inc.  
17 Main Street  
Watertown, MA 02172

Telephone : (617) 924-3844  
Télécopieur : (617) 924-1699

Coût : 149 \$ US, plus 5 \$ de frais d'expédition.

A computer assisted drafting program, purchased and supplied by the Canadian Police Research Centre, was received with a request to provide a comparative evaluation with other CAD products currently in use by RCMP Forensic Identification Sections.

## THE PRODUCT

Provided on two 3.5 floppy disks with an operator's manual is a low end, 3 dimensional drafting utility, designed for preparation of orthographic and 3 dimensional views of typical indoor and outdoor scenes, including motor vehicle accident scenes.

NOTE: The original product was not capable of metric notation. This was not acceptable for a forensic application in Canada and the product (American) was revised by the manufacturer. It is now capable of notation in imperial as well as metric systems.

## EVALUATION PROCEDURE

The product was loaded onto a personal computer equipped with a 486 DX processor running at 33 Mh. 24 MB of RAM, a VGA video card with 574K memory.

A much more powerful system is recommended to run the full 3D functions of this program. The computer used for the evaluation was not capable of running the more sophisticated 3D modelling applications. Several run time errors were encountered. 3D paint and hidden line requests took several minutes to complete.

No testing was carried out of the animation and presentation modelling features.

The program was loaded as instructed.

The various functions were activated and were applied vigorously. Where the system failed or where desirable features were found, comments have been recorded on the schematics.

## LOADING

3D EYEWITNESS loads in the usual manner (using the WINDOWS program manager), no problems were encountered.

## **PROGRAM CONFIGURATION**

None required. Option settings only. The program is well designed for the novice computer operator. The inability to customize the program is somewhat frustrating for the advanced CAD operator.

## **OPTIONS**

3D EYEWITNESS requires little file setup. There does not appear to be a means of saving the option settings in those few applications allowing customization. Each time a file is opened, the option settings return to default values.

## **HELP FILES**

The help files are WINDOWS menu specific, detailed but concise and easily understood.

## **TEXT**

The text function is straight forward but is limited to one line of 50 characters. Additional lines must be typed separately and added below previous lines. The selection tool allows movement and copy only.

## **SNAP**

The snap function would not work. This was a problem when placing symbols. Precise alignment was not possible. There was no help file for this feature.

## **SYMBOL APPEARANCE**

The symbols were well drawn but only editable in size. Body parts, firearms, weapons were rather simplistic in appearance. Suited for basic illustration purposes only.

There was some discussion generated surrounding the detailed yet generic symbols. The furniture and appliance symbols will seldom visually match the "real world" items they represent. Differences are obvious when the drawing is compared with crime scene photographs.

Such differences may spawn doubt in the eyes of the court as to the accuracy of the overall drawing. This is not a new concern to the law enforcement community. Doubts have been expressed regarding the objectivity, or lack of it, in the proliferation of CAD animations being entered in the Courts. To date, North American Courts seem to be accepting such evidence.

## NOTATION

The AUTO measurement function worked well for the indoor room dimensions, but did not work well when applying dimensions to the exterior walls. Satisfactory results could not be achieved in the limited time available to examine this feature. While testing this feature, the program suffered several run time errors.

## LAY OUT

The lay out tools form one of the most attractive features of this software. Placement of the elements is made by either typing an X - Y coordinate value or by using the arrow keys.

The arrow key pressed with the shift key moves the curser on whole unit (1 foot or 1 metre).

The arrow key by itself move the curser one sub nit (1 inch or 1 centimetre).

Walls can be pulled to length using the mouse.

An ortho setting is available.

## ANIMATION (FLY THROUGH) FEATURES

This is a useful demonstrative tool. The feature is straight forward and easily applied.

## VIEW

A full selection of zoom commands are available and seem to work well.

## **SOME OBSERVED SHORTCOMINGS**

Door and window entities can only be set into a wall. This seemed to present a problem where such entities occupied the full width of a hallway or opening between two parallel structures.

Run time errors were experienced in the "cut wall" command.

### **FILE IMPORT/EXPORT**

The DXF export command caused changes in test.

Arcs changed to full circles in door swing symbols.

Symbols could not be edited where required (where overlapping).

Several run time errors were encountered when attempting to dimension outer walls. It was not possible to set dimensions as described in the manual.

### **OVERALL**

This program is designed to provide a 3D CAD capability to those crime scene specialists who may not be skilled on the more sophisticated programs such as AutoCAD and Microstation.

The program is capable of illustrating limited, uncomplicated scenes.

3D EYEWITNESS would perform much better on a faster computer. This is particularly obvious when working in 3D space and applying the hidden lines and rendering functions.

Time and hardware restraints prevent me from evaluating this program to the extent required. From what I have been able to accomplish with the program in the few short hours available to learn its features has convinced me that it would provide an excellent entry level tool for any crime scene reconstructionist.

The program may also serve as a preliminary drawing tool. The features of 3D EYEWITNESS could be utilized to quickly lay out a complex drawing, to be exported to a more sophisticated CAD program for completion.



## RECOMMENDATIONS

I recommend field testing of this program in an operational environment before supporting its use as a police tool.

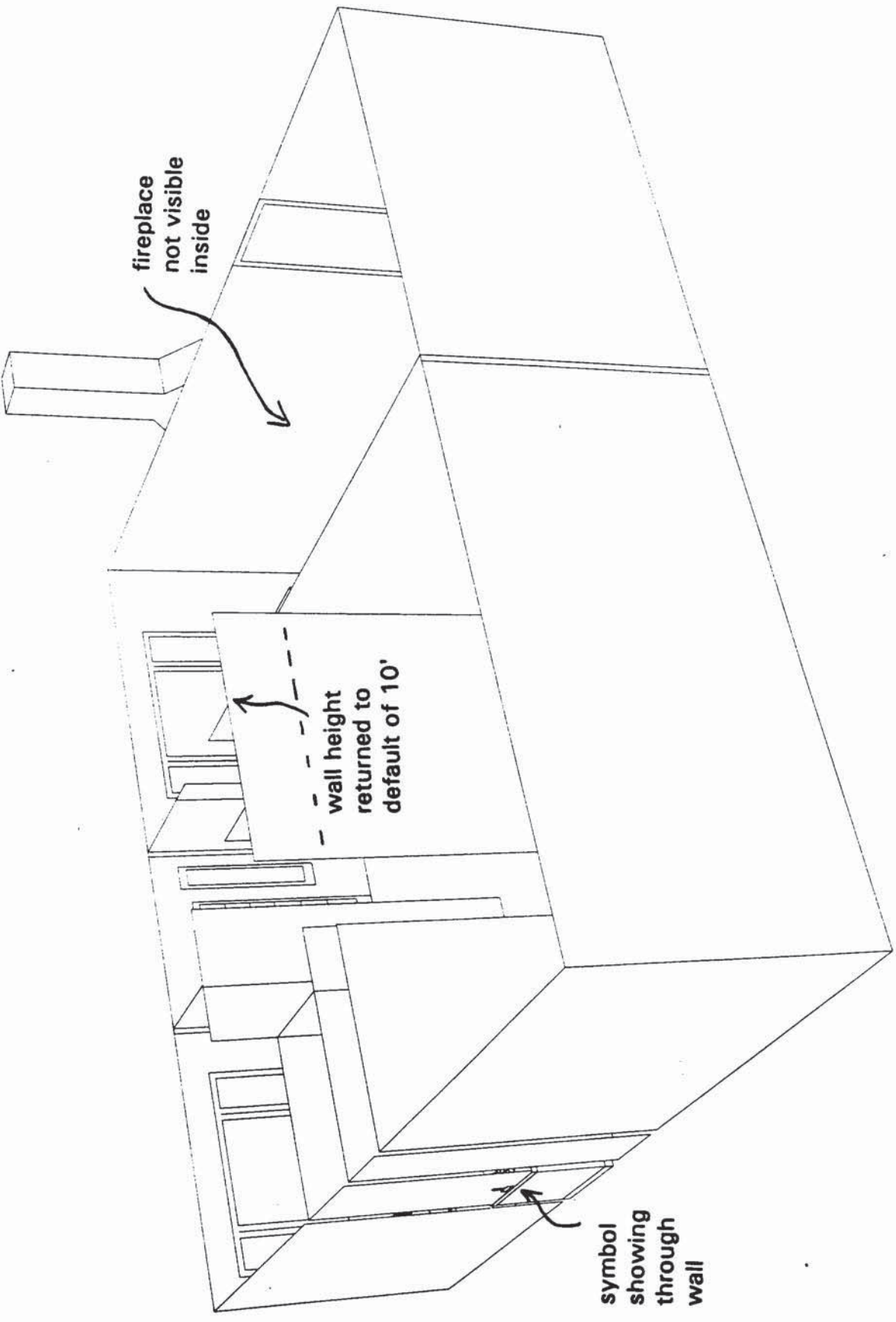
The task of testing the program in both indoor and accident scenes should be assigned to specialist who routinely carry out these duties and are in a better position to challenge it more vigorously.

Drawings that would utilize all the features of the program should be prepared and submitted with a final product evaluation. The objective of a field test would be to:

- 1) quantify the degree of difficulty in learning the program,
- 2) assess its real world utility to the police scene specialist, and
- 3) determine acceptability as a courtroom demonstration tool.

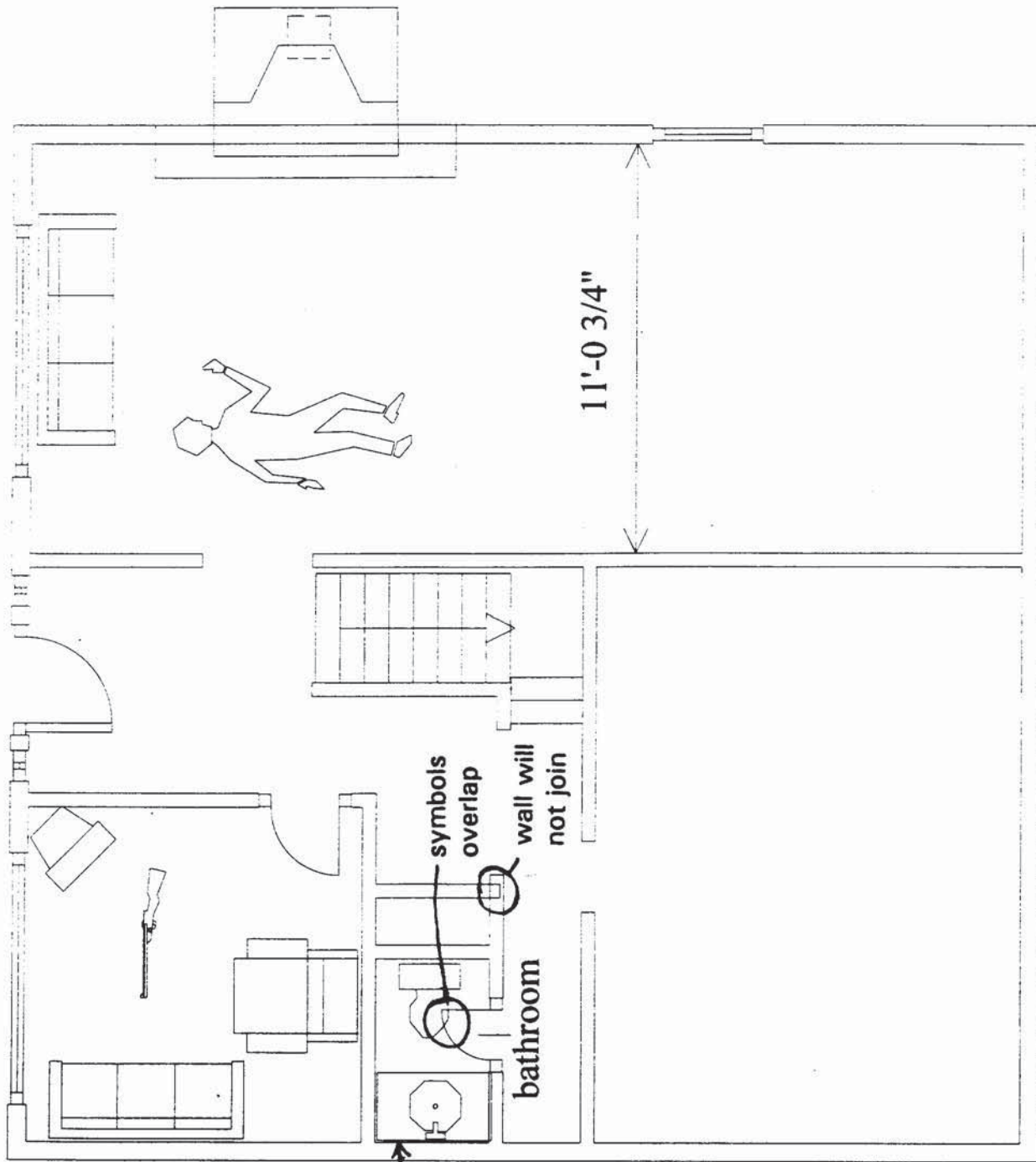
## ATTACHMENTS

Sample drawings with notations.



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1/1

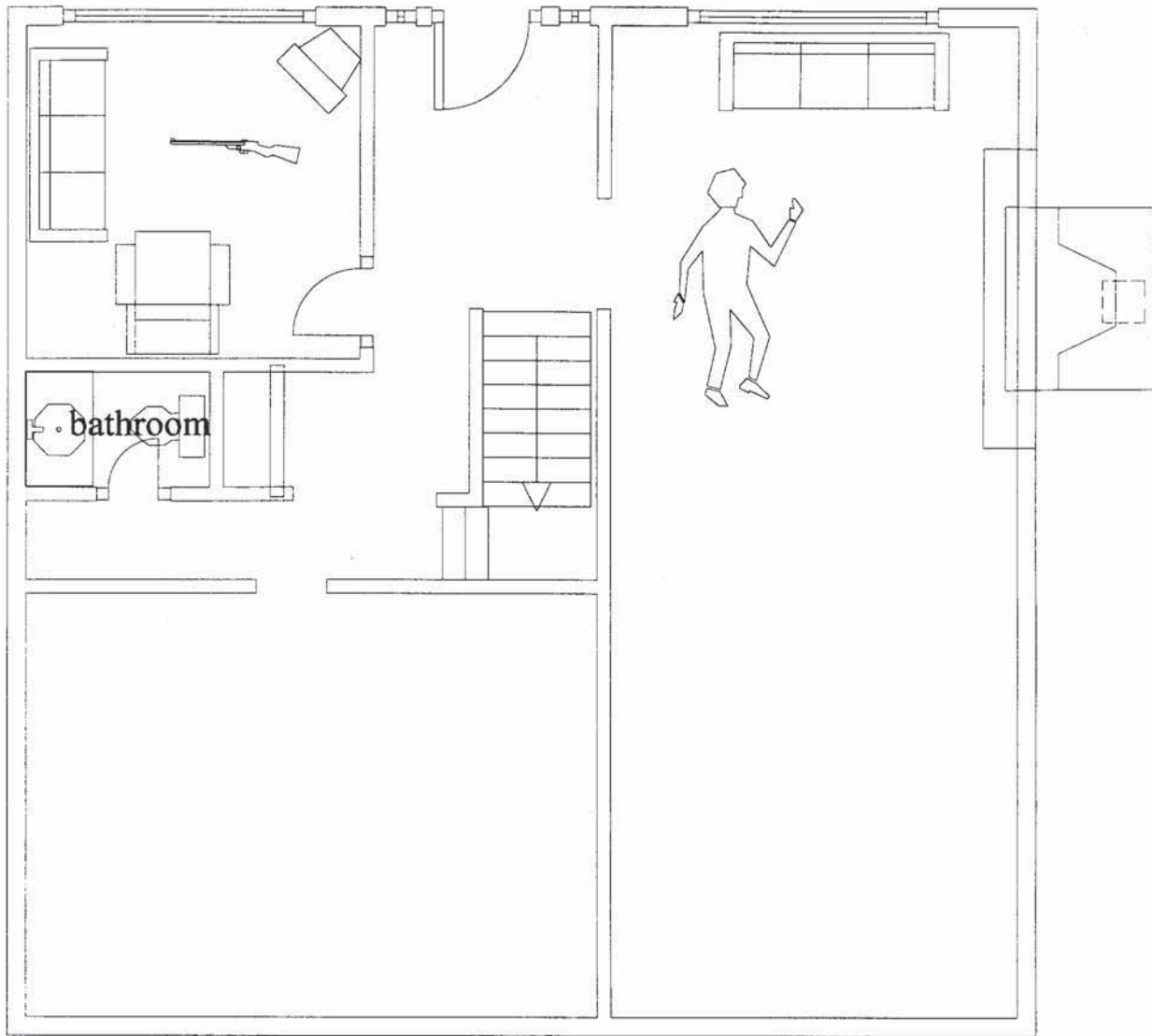


cannot snap  
into exact  
position

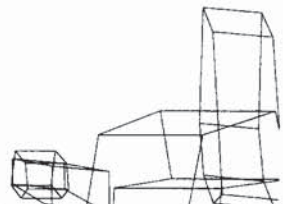
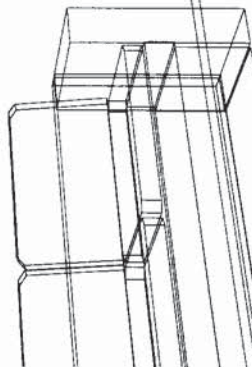
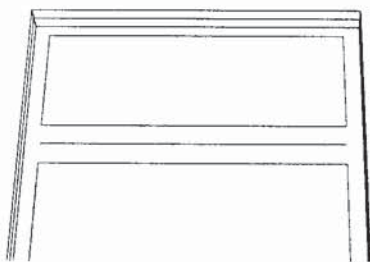
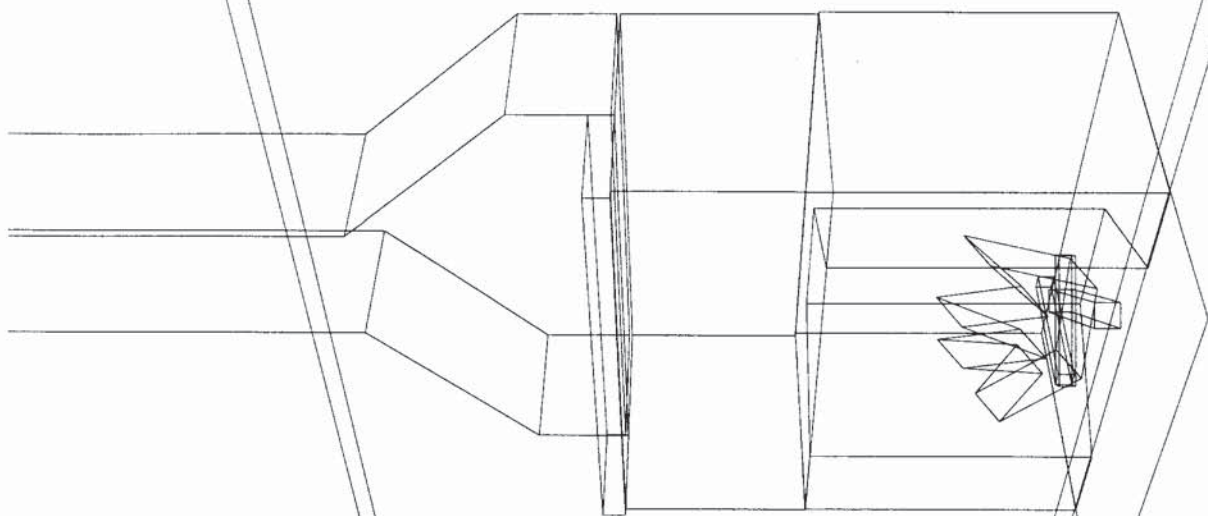
symbols  
overlap  
wall will  
not join

bathroom

11'-0 3/4"

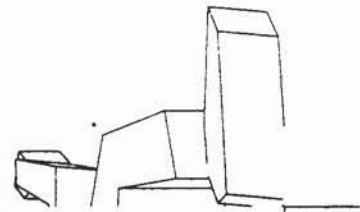
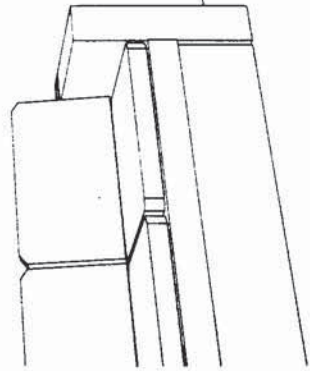
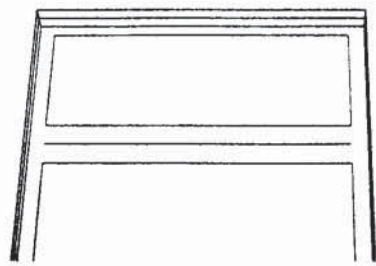
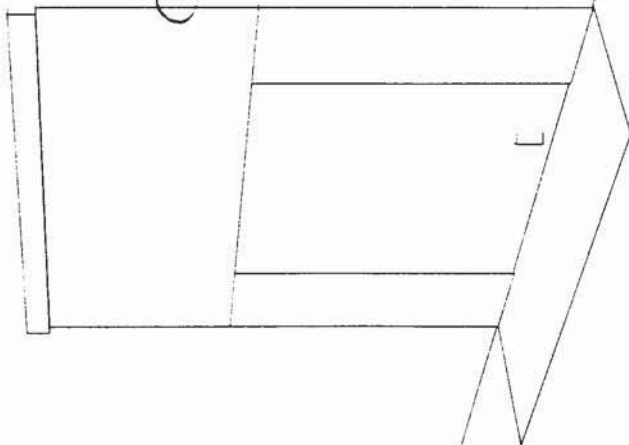
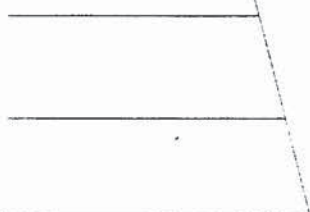


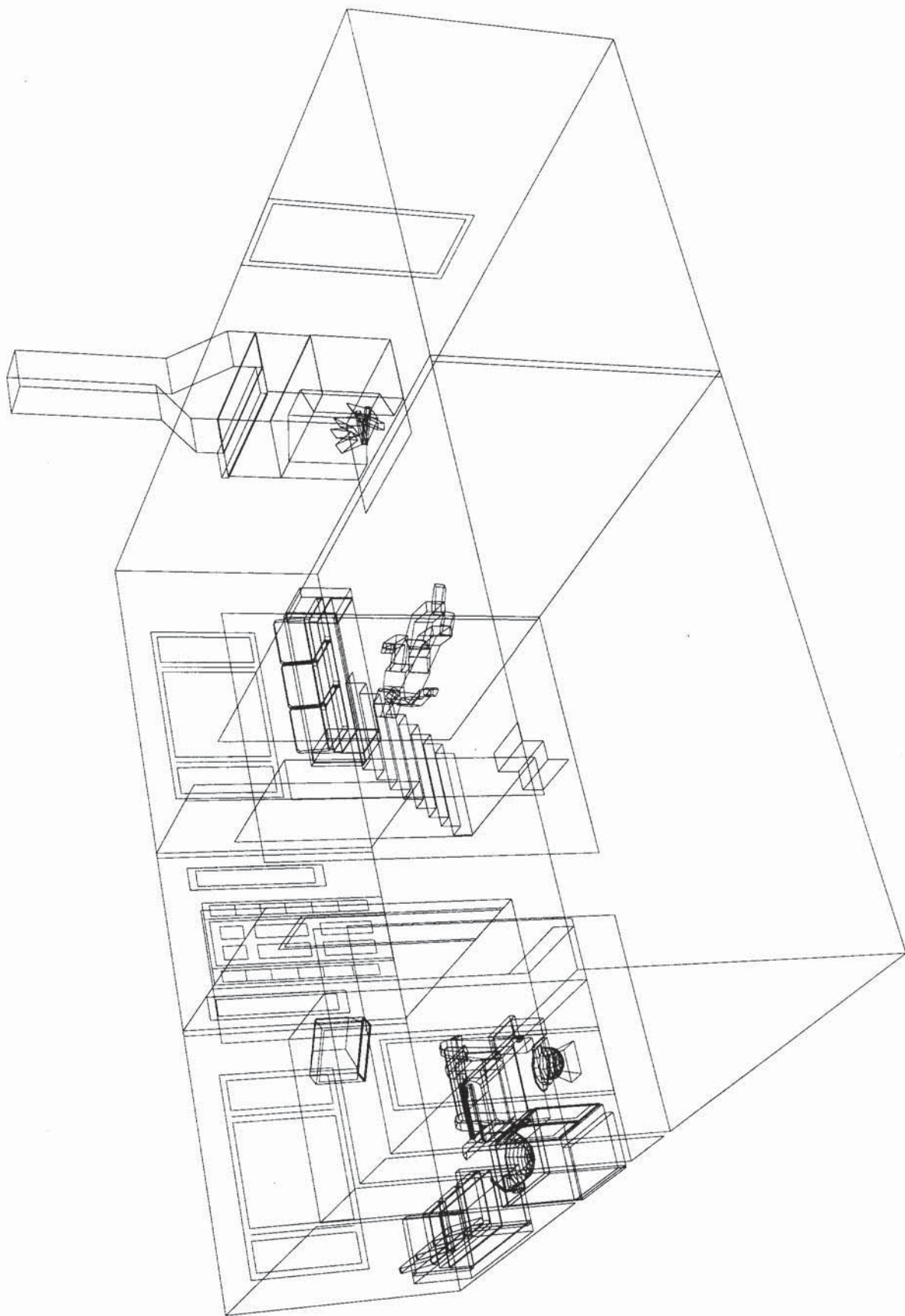
1/1



1/1

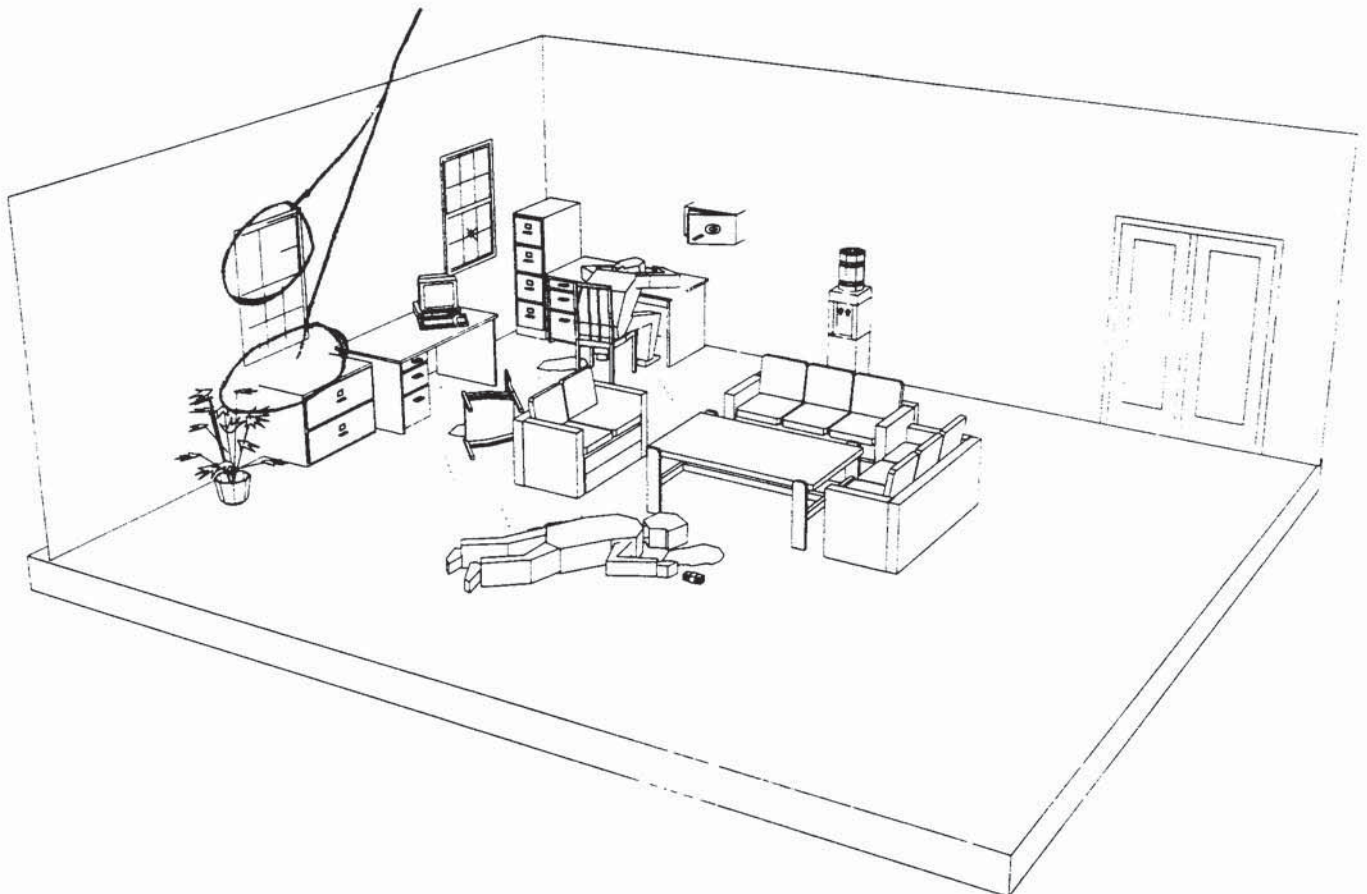
line lost with hide  
line command



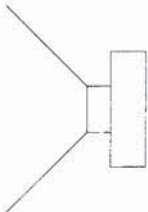
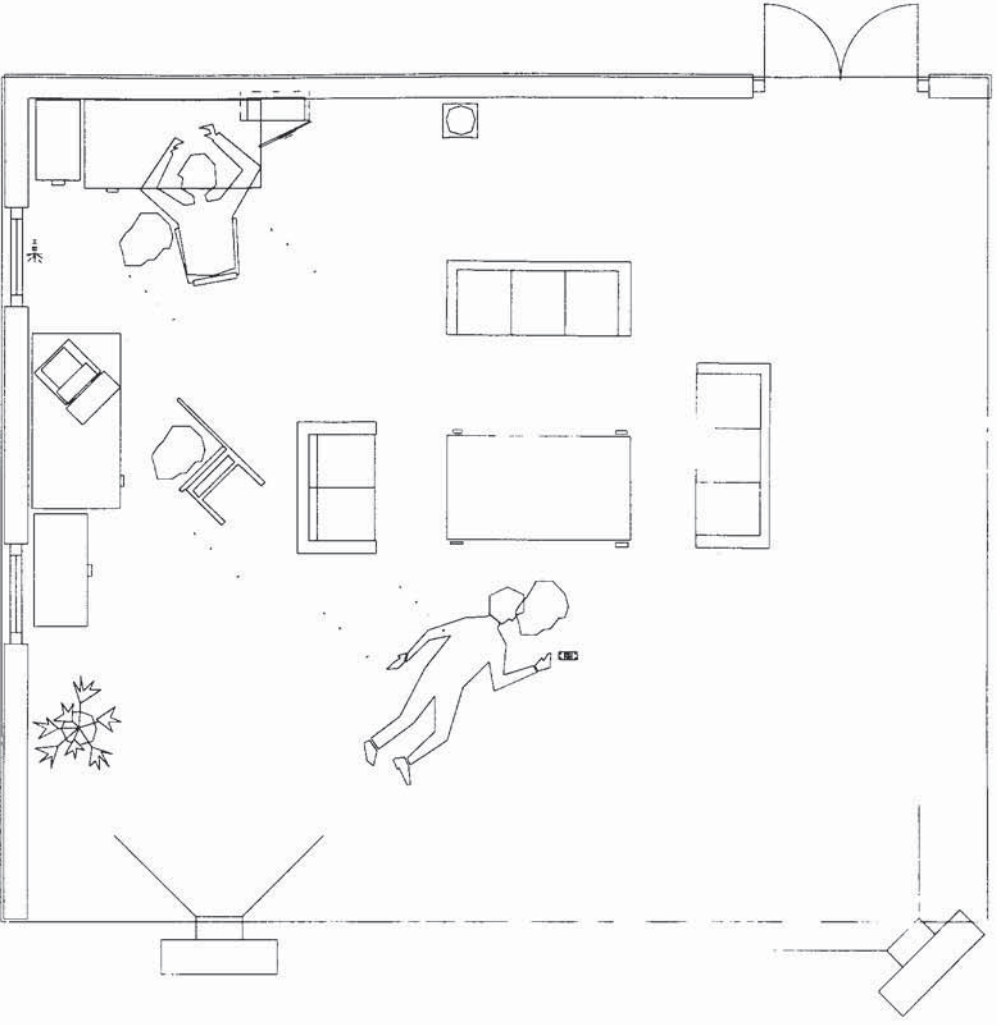


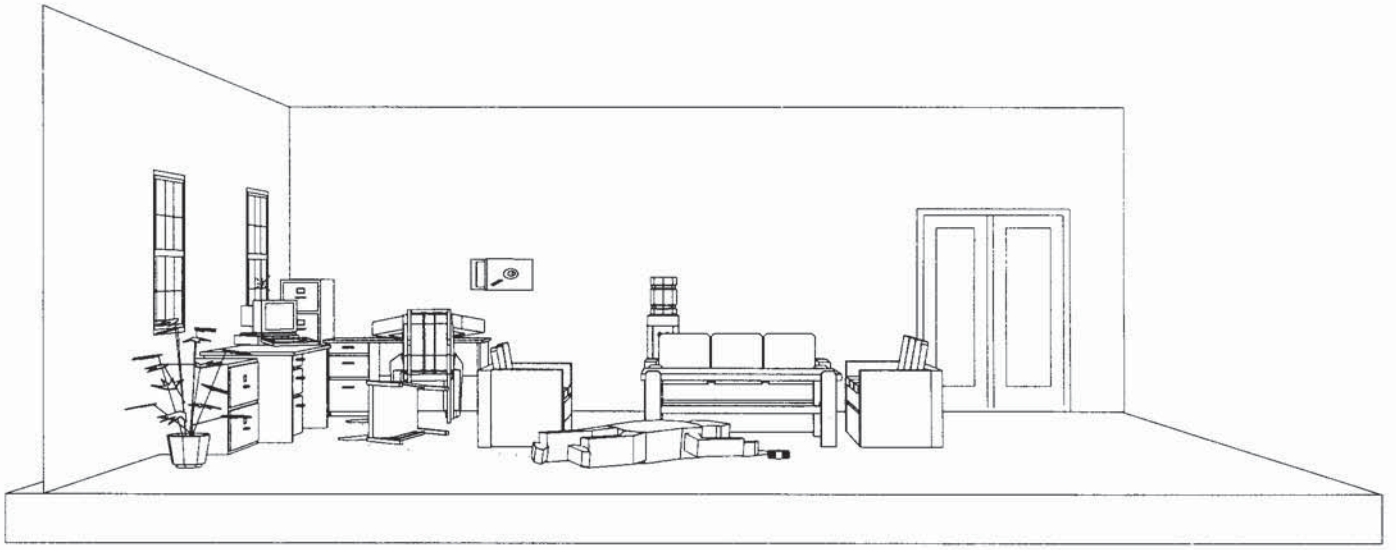


lines lost due to hide line command  
precise placement of element required











# DesignWare Inc.

1'7 Main Street Watertown, MA 02172 • (617) 924-3844. Fax (617) 924-1699

Dear Criminal Justice Professional:

Enclosed is the information you requested about 3D Eyewitness, the only PC-based 3D visualization software specifically for criminal justice and legal professionals. The Windows environment makes 3D Witness pick-and-place easy.

Unlike other floorplan programs, 3D Eyewitness lets you look at the scene in three dimensions from whatever vantage point you desire-up stairs, down stairs, from the floor, through a window, or around a post. Plus, 3D Movie Maker allows you to automatically create a real-time walk through the scene.

If this doesn't sound amazing enough, let me tell you the price-just \$149. That's right, a special introductory price of \$149 for the complete package with nothing extra to buy. Plus, you can order with complete confidence. Try 3D Eyewitness for 30days; if you're not completely satisfied, return it for a refund of the purchase price.

3D Eyewitness has already been used and accepted in the courtroom, providing a powerful, persuasive tool. For crime scene recreation or traffic accident documentation, 3D Eyewitness is ideal. Imagine being able to recreate a scene, look at it in 3D, and even take a "movie" tour through it-perfect as a powerful evidenciary or briefing tool. Plus, the Scene Inventory module makes it a snap to keep and maintain an evidence list.

DesignWare accepts credit cards, checks, and even purchase orders. Simply fill out and return this order form. Use our toll free fax number (800/536-7595), or call us directly at 617/924-3844.

Don't delay, order 3D Eyewitness today. You'll get 2D and 3D power, more than 750 symbols, plus 3D MovieMaker and Scene Inventory modules.

Sincerely,



Steve Webster  
Vice President

### System Requirements

- ❖ 386SX or higher microprocessor
- ❖ 2MB RAM (4MB or more recommended)
- ❖ 12MB hard disk space
- ❖ VGA or better display (256-color support recommended)
- ❖ Microsoft Windows 3.1 or later
- ❖ Math coprocessor recommended

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### Yes! Send me 3D Eyewitness!

Disk size:  3½" High Density  5¼" High Density  
 3½" Low Density

<input type="checkbox"/> 3D Eyewitness	\$149.00
MA Residents, add 5% sales tax (\$7.45)	\$ _____
Shipping & Handling (US Mail)	\$5.00
Total	\$ _____

Is this address correct? Please note corrections Order Code: EYE1

Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

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Here's what professionals say about 3D Eyewitness...

"For courtroom presentations or tactical planning, 3D EyeWitness is ideal. fast and safe, law enforcement professionals will be delighted with 3DEye Witness."

**Mike Maxey, Investigator  
Gregg County (TX) District Attorney**

"The 3D Eyewitness libraries contain just about everything I can imagine ever needing to assist with an investigation."

**Kelly Robbins  
Kansas Bureau of Investigation**

Super! In less than 20 minutes, we had a finished traffic diagram and the 3D,"

**Jim Janeczek  
Knox County Deputy Sheriff**

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File	Options	Help	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12
Symbol	1'-6" x 2'-1 1/4"													
Symbol	7' 11/16" x 5' 3/8"													
Symbol	2'-10 1/2" x 2'-6 7/16"													
Symbol	1'-7 11/16" x 9"													
Symbol	7' 11/16" x 7' 11/16"													
Symbol	17'-5 1/2" x 7'-6"													
Symbol	6'-1 5/8" x 2'-1 11/16"													
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Symbol	7'-4 3/8" x 3'-1 3/8"													
Symbol	7'-8 5/16" x 3'-1 3/8"													
Symbol	4'-0 5/8" x 2'-10 5/8"													
Symbol	7' 0" x 7' 0"													

## Automatically prepare a scene inventory

Keeping track of evidence is easy with the Scene inventory module, which automatically catalogs everything you've incorporated in the scene.

Work in the Scene Inventory spreadsheet or export to DBF, WKS, or ASCII file formats for easy manipulation in your favorite spreadsheet or database application.

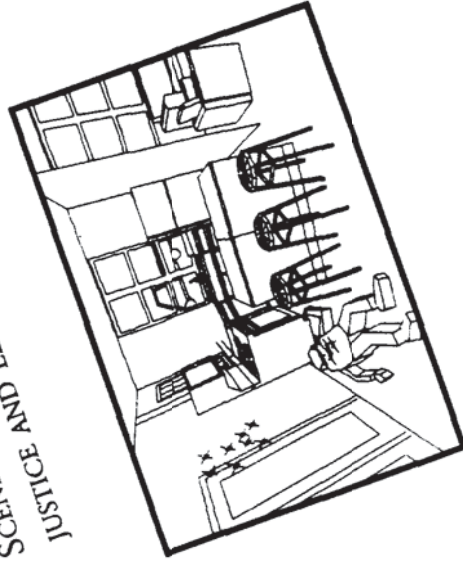
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SCENE RECREATION SOFTWARE FOR CRIMINAL JUSTICE AND LEGAL PROFESSIONALS



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- ◆ Recreate crime scenes
- ◆ Document traffic accidents
- ◆ Prepare presentations



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## Floorplans plus 3D

Quickly drop in walls, windows, doors, furniture, and more in the easy-to-use 2D editor. With a click of the mouse, see the design in 3D - painted images, wireframe, or hidden-line renderings. You can even see in or out windows.

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## Recreate interior, exterior, highway scenes

3D Eyewitness comes complete with more than 750 symbols. Guns, knives, bodies, movable body parts, traffic intersections, traffic signs, and furniture. All of the 3D Eyewitness symbols are completely resizable, so the options are virtually endless.

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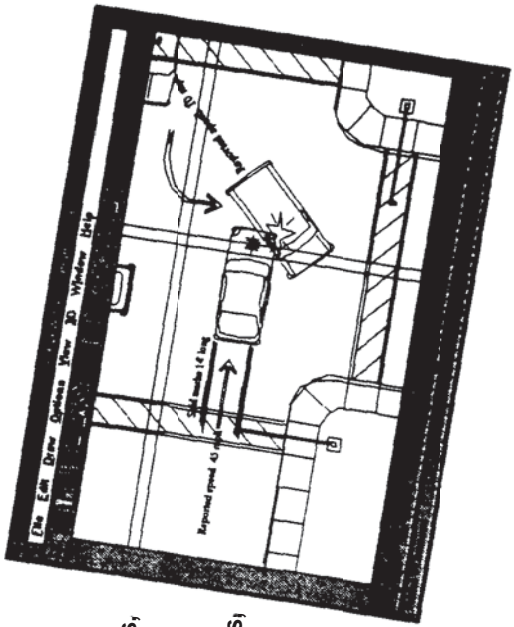
## Walk through the site with virtual reality technology

After you draw the scene, choose a path through the scene and let 3D Eyewitness create a real-time tour through the room or building. Study the scene using the program's 3D MovieMaker or replay the "movie" as a powerful evidentiary or briefing tool.

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## View a scene from any angle

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