

Request for Vehicle Purchase

Justification Letter

March 20, 2013

Grant and Grant Year: UASI GY 2010

Project Title: Mobile Regional Simulator (#2010-118)

AEL Number: 04AP-08-SIMS

Project Coordinator/Point of Contact: CFO Craig Radelman

Phone Number: 786.295.0844

Email: cradelman@miamigov.com

The item is a mobile trailer that will simulate the environment of collapse, cribbing, search and rescue, and hazardous materials. It will be a Regional UASI asset that will be housed in the City of Miami but will be available to The UASI jurisdictions from Monroe to Palm Beach for their training needs. It will be used to train, monitor, and evaluate the disciplines' ability to respond and recover in emergency situations. The City of Miami Department of Fire-Rescue will be responsible for the maintenance and storage of this item.

Total cost (include taxes, tag, and other fees associated with purchase): \$203,637.71



First Choice of First Responders.

- *Guardian Safety & Survival Training Simulator*
- *Rescue & EMS Equipment*
- *Training • Service*
- *Certification*

November 19, 2012

Procurement Chief
Miami Fire Department
Miami, FL

RE: "Guardian" Safety and Survival System Simulator
Sole Source Provider confirmation letter.

Dear Chief:

Thank you for your interest in purchasing the "Guardian" Safety and Survival System Simulator. We recognize that you must submit the purchase of items such as this Simulator to competitive bidding, however, Personal Protection Equipment Specialists ("PPES"), a wholly owned subsidiary of Quinwald Enterprises, Inc., is the owner of the U.S. Patent on this device (Patent No. US 7,901,212 B2). Accordingly, only PPES is authorized to manufacture and sell the Guardian simulator. As such, **PPES is a Sole Source Provider for this piece of equipment.** No other company makes a similar or competing product.

Because PPES is a Sole Source Provider, if this were a Pennsylvania transaction, under Pennsylvania law, you would be exempt from the requirement of seeking competitive bids. We offer no position as to whether you are exempt from the requirement of seeking competitive bids under Florida law, and strongly urge you to seek information on this exemption from a Florida lawyer.

Again, thank you for your interest in the "Guardian" Safety and Survival System Simulator, the ultimate in First Responder Training devices.

Very truly yours,

Thomas A. Quinn
President
Personal Protection Equipment Specialists

**Request for Taxpayer
Identification Number and Certification**

Give Form to the requester. Do not send to the IRS.

Name (as shown on your income tax return)
Quinwald Enterprises

Business name/disregarded entity name, if different from above
Personal Protection Equipment Specialists, Inc.

Check appropriate box for federal tax classification:
 Individual/sole proprietor C Corporation S Corporation Partnership Trust/estate
 Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶
 Other (see instructions) ▶

Exempt payee

Address (number, street, and apt. or suite no.)
109 Liberti Lane

City, state, and ZIP code
Lincoln University, PA 19352

Requester's name and address (optional)
City of Miami

List account number(s) here (optional)

Part I

Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

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Employer identification number

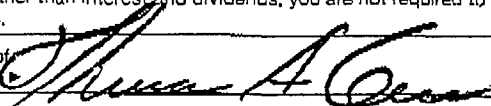
2	3	-	2	8	6	6	7	4	9
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Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here Signature of U.S. person:  Date: 03/20/2013

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.



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Very truly yours,

Thomas A. Quinn
President
Personal Protection Equipment Specialists

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Patents Application Grant 7,901,212 b2 Find prior art Discuss this patent View PDF Download PDF Sign in

Mobile collapsed building simulator
US 7901212 B2

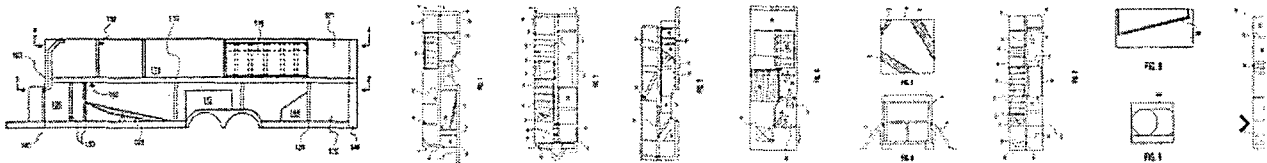
ABSTRACT

A mobile collapsed building simulator for use in training fire fighters and emergency personnel. The simulator comprises a trailer body with an interior partitioned into two vertical levels. A plurality of partitions divide the vertical levels into a navigable path through the trailer body. A plurality of obstacles are configured within navigable path to simulate a collapsed building environment.

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Inventors	Kerry Oswald 2 More »
Original Assignee	Personal Protection Equipment Specialists
U.S. Classification	434/226
International Classification	G09B19/00
Cooperative Classification	A62C99/0081
European Classification	A62C 99/00D
References	Patent Citations (28) Non-Patent Citations (3) Referenced by (3)

External Links USPTO
2 More »

DRAWINGS (11)



DESCRIPTION

CROSS REFERENCE TO RELATED APPLICATIONS

This patent application claims the benefit of priority from U.S. Provisional patent application No. 60/872,843, Filed Dec. 5, 2006. The contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates to a mobile collapsed building simulator for training fire fighters and emergency personnel.

BACKGROUND OF THE INVENTION

There continues to be a need for improved collapsed building rescue training in light of terrorist attacks such as the 9/11 tragedy, as well as natural disasters such as tornadoes, hurricanes, and earthquakes. Collapsed buildings present unique dangers to first responders, such as limited or zero visibility, unstable flooring, gas leaks, thick smoke, and live electrical wiring. Current fire fighting training facilities do not realistically reproduce the hazards and extremely confined conditions of a collapsed building. Rescue personnel who are not properly prepared, pose a risk of seriously injuring themselves, trapped victims and other first responders.

There continues to be a need for a simulator that is easily transportable, that can also fit within the envelope of a typical firehouse bay. This flexibility is advantageous for example, for indoor training simulations in urban settings

CLAIMS

1. A mobile collapsed building simulator comprising:
 - a trailer body having an interior partitioned into at least two vertical levels defining a navigable path through the trailer body;
 - a plurality of obstacles configured within said navigable path;
 - wherein said plurality of obstacles are configured within said navigable path to simulate a collapsed building environment;
 - said collapsed building simulator further comprising a plurality of partitions that divide at least one of said vertical levels defining the navigable path,
 - wherein said plurality of partitions are configured to provide at least two parallel paths in at least a portion of said at least one vertical level and said plurality of partitions are configured to allow traverse from one of said parallel paths to another as said navigable path traverses said parallel paths.
2. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises:
 - a hinge-mounted framework assembly of joists and beams extending from
 - an upper surface of a portion of the navigable path, to a lower surface of said portion of the navigable path, the hinge-mounted framework

where space is at a premium, as well as other areas where the climate is inclement a significant portion of the year.

SUMMARY OF THE INVENTION

The present invention relates to a mobile collapsed building simulator for training fire fighters and emergency personnel. The simulator comprises a trailer body with an interior partitioned into two vertical levels. A plurality of partitions divide the vertical levels into a navigable path through the trailer body. A plurality of obstacles are configured within navigable path to simulate a collapsed building environment.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is best understood from the following detailed description when read in connection with the accompanying drawing. It is emphasized that, according to common practice, the various features of the drawing are not to scale. On the contrary, the dimensions of the various features are arbitrarily expanded or reduced for clarity. Included in the drawing are the following figures:

FIG. 1 is a cut away driver's side view of the interior of the mobile collapsed building simulator;

FIG. 2 is a cut away plan view of the first vertical level of the interior of the mobile collapsed building simulator along 2-2;

FIG. 3 is a cut away passenger side view of the interior of the mobile collapsed building simulator along lines 3-3;

FIG. 4 is a cut away plan view of the second vertical level of the interior of the mobile collapsed building simulator along lines 4-4 shown in FIG. 1;

FIG. 5 is an alternate view from the navigable path of the diagonal restriction;

FIG. 6 is a rear view of the mobile collapsed building simulator;

FIG. 7 is a cut away plan view of the first vertical level of the interior of the mobile collapsed building simulator along 2-2, according to another embodiment of the invention;

FIG. 8 is a cut away plan view from the navigable path of the restrictive weighted plank along 5-5 shown in FIG. 7, according to another embodiment of the invention;

FIG. 9 is a cut away view from the navigable path of the pipe in the first vertical level of the interior of the mobile collapsed building simulator, according to another embodiment of the invention;

FIG. 10 is a cut away plan view of the second vertical level of the interior of the mobile collapsed building simulator along lines 4-4 shown in FIG. 1, according to another embodiment of the invention;

FIG. 11A is a perspective view of the mobile collapsed building simulator for sewer line rescue, according to another embodiment of the invention; and

FIG. 11B is a cut away plan view of the sewer pipe enclosure, according to another embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Although the invention is illustrated and described herein with reference to specific embodiments, the invention is not intended to be limited to the details shown. Rather, various modifications may be made in the details within the scope and range of equivalents of the claims and without departing from the invention.

Referring now to FIG. 1 and FIG. 2, an exemplary embodiment of the mobile collapsed building simulator 100 is provided. The exemplary simulator 100 is constructed within the interior of a tandem axle car trailer 102 having

assembly of joists and beams being configured to obstruct the navigable path.

3. The mobile collapsed building simulator according to claim 2 wherein the hinge-mounted framework assembly of joists and beams is configured such that the hinge portion of the hinge-mounted framework assembly of joists and beams is substantially parallel to the longitudinal axis of the trailer body; and

whereby at least a portion of the hinge-mounted framework assembly of joists and beams is configured to be elevated by cribbing for continued traverse of the navigable path.

4. The mobile collapsed building simulator according to claim 2 wherein the hinge-mounted framework assembly of joists and beams is configured such that the hinge portion of the hinge-mounted framework assembly of joists and beams is substantially transverse to the longitudinal axis of the trailer body; and

whereby at least a portion of the hinge-mounted framework assembly of joists and beams is configured to be elevated by cribbing for continued traverse of the navigable path.

5. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises a plank mounted on a fulcrum;

said fulcrum being attached to a bottom surface of a portion of the navigable path and being configured such that one end of said fulcrum-mounted plank contacts a portion of the bottom surface of the navigable path while an opposing end of said fulcrum-mounted plank remains in an elevated position;

said plank being configured along the navigable path such that said plank is traversed in order to progress through the navigable path;

wherein said plank is configured such that said elevated end of the plank shifts downward upon traverse of said plank to simulate a floor collapse.

6. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises:

at least one series of line entanglements which includes a plurality of flexible lines connected at a first end to an upper surface of a portion of the navigable path and at a second end to a lower surface of the portion of the navigable path, the flexible lines being configured to ensnare at least a portion of equipment worn by a first responder upon traverse of the navigable path.

7. The mobile collapsed building simulator according to claim 6 further comprising at least one additional series of line entanglements configured transverse to the first series of line entanglements.

8. The mobile collapsed building simulator according to claim 6 wherein said flexible lines include a plurality of ropes.

9. The mobile collapsed building simulator according to claim 6 wherein the at least one series of line entanglements is configured such that at least a portion of the line entanglements is positioned diagonally across at least a portion of the navigable path.

10. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises:

a wall substantially obstructing the navigable path;

approximate dimensions of about 24 feet in length and 8 feet in width. The trailer **102** typically includes two wheel wells **164** located on both sides of the trailer, a portion of each wheel well extending into an interior portion of the trailer **100**. Typically, there may be one or more doors located on at least one side of the trailer **100** for installation, modification, or repair purposes, as well as extraction of trainees. It is contemplated, however, that the simulator may be constructed in trailers of different dimensions.

The trailer **102** is designed to fit within the envelope of a typical fire station truck bay. This configuration for example, allows the trailer to be used in urban settings where space is a premium, and in cities where the weather may be unsuitable for external training exercises. The simulator can also be easily hitched and transported off site so that collapsed building rescue exercises requiring the coordination of several fire teams can be conducted.

In the exemplary embodiment shown in the figures, a structural framework divides the width of the trailer **100**, predominantly along the longitudinal axis of the trailer **100**. This first structural framework traverses the length of the trailer. In this example, a second structural framework bisects the height of the trailer, and also traverses the length of the trailer **100**. In concert, the two structural frameworks define a navigable path through each of two sides of the trailer on each of the two vertical levels **120** and **121** separated by a partition **110**. The crawl space height of each vertical level is approximately four feet. The majority of all internal surfaces are painted black and all external sources of light are eliminated to realistically simulate the interior of a collapsed building which typically has no electrical power or light sources. In addition, trainees may traverse the navigable path wearing a self-contained breathing apparatus (air pack), which further simulates the rescue conditions of a collapsed building.

In an exemplary embodiment, the lower vertical level **120** is designed to acquaint trainees to the stresses of operating in a confined space. The rear of the trailer contains a loading ramp. A series of wood planks are connected to the open end of the structural framework at the rear of the trailer. The planks serve as doors that define the entry and exit points **146** of the vertical level **120**. Trainees typically enter the simulator from the ramp through the lower left door **146**.

Upon entering the simulator, trainees immediately encounter a hinge-mounted repositionable plank **126** that is configured perpendicular to the navigable path such that it completely blocks the navigable path. In an exemplary embodiment, the hinge-mounted repositionable plank **126** is connected to the central structural wooden framework. The hinge of the plank is located on a top or side portion of the plank, and is configured such that when sufficient force is exerted upon the plank, trainees move the plank aside, and may progress forward along the navigable path. In an exemplary embodiment the hinge-mounted repositionable plank **126** is optionally connected by cable to a 10 pound weight. The weight makes it more difficult to move the plank and helps return the plank to its original position behind the trainees once they move completely past the plank. The plank has no handles and is sized and configured such that trainees cannot easily exit the simulator through hinge-mounted repositionable plank **126**.

In an exemplary embodiment, trainees continue to crawl along the navigable path in region **108** and encounter the first obstacle, the simulated floor collapse. This exemplary obstacle is an approximately 80 inch by 43 inch fulcrum-mounted plank **128** that is connected to the floor of the trailer. The width of the fulcrum-mounted plank **128** is nearly the exact width of the navigable path thereby forcing trainees to traverse the plank **128** before proceeding. The edges of the fulcrum-mounted plank **128** are mitered such that the leading and trailing edges of the plank **128** may lie approximately flush when contacting the floor of the trailer. The fulcrum is positioned approximately 24 inches from the leading edges of the plank **128** which causes a majority of the fulcrum-mounted plank **128** to be elevated from the floor of the trailer. The absence of light in the simulator obscures the fact that the plank is mounted on a fulcrum. As the

wherein said wall is configured such that a substantial portion of said wall must be demolished to allow further traverse of the navigable path.

11. The mobile collapsed building simulator according to claim 10 wherein the wall is composed of dry wall or concrete.

12. The mobile collapsed building simulator according to claim 1 further including:

a plurality of movable objects configured to impede traverse of the navigable path, and

wherein at least some of said movable objects are sized to be removed from the simulator before continued traverse of the navigable path.

13. The mobile collapsed building simulator according to claim 12 wherein said plurality of movable objects include obstacles having at least one of a different shape, a different size or a different weight than another one of said plurality of movable objects.

14. The mobile collapsed building simulator according to claim 12 wherein at least one movable object of said plurality of movable objects is sized such that the at least one movable object can not be removed from the navigable path.

15. The mobile collapsed building simulator according to claim 1 further including a smoke generator is configured to introduce smoke into the interior of the trailer body.

16. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path includes a set of joists mounted to a bottom surface of a portion of the navigable path, wherein said set of joists is configured to impede the traverse of the navigable path.

17. The mobile collapsed building simulator according to claim 1 wherein the at least one segment of said plurality of partitions divides said vertical levels into parallel paths containing closely-positioned wall studs configured between the parallel paths to hamper traverse along the navigable path between the parallel paths.

18. The mobile collapsed building simulator according to claim 17 wherein at least a portion of said wall studs is obscured by a covering selected from a group consisting of dry wall, plaster or mortar; and said covering is configured to be removed before traverse through the navigable path.

19. The mobile collapsed building simulator according to claim 1 wherein

a portion of the navigable path comprises at least one fixed diagonal beam positioned across the navigable path and configured to impede traverse along the navigable path.

20. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises:

a plank substantially obstructing the navigable path and configured to be repositioned before further traverse along the navigable path;

said plank being connected to a set of weights; and

trainee traverses the fulcrum-mounted plank 128, the majority of the trainee's weight crosses the fulcrum and the plank 128 shifts downward, thereby simulating a floor collapse. Positioning of the fulcrum and the size of plank are exemplary. The floor may be raised and the location of the fulcrum may be alternatively configured so that the plank "collapses" as soon as the trainee steps on it. Additionally the plank may be configured to be less than the width of the navigable path to simulate a partial floor collapse.

In an exemplary embodiment, trainees next pass through a series of wall studs 130 as they transition from the lower left side to the lower right side of the simulator 100. At least a portion of these wall studs may be concealed by dry wall or mortar board 106 that must be demolished before continued traverse along the navigable path. A top plate of the wall studs 130 is mounted on the underside of the structural framework that divides the trailer vertically in half. The exemplary wall studs 130 are connected to a sole plate, and are positioned on 16 inch centers, which replicates typical mounting distances between wall studs according to most building codes. This narrow width between wall studs 130 requires the majority of trainees to remove their air packs and feed their air packs through the wall studs 130 before re-donning and proceeding along the navigable path. Optionally, the dry wall or mortar board may contain at least one light switch and at least one electrical outlet. Although the electrical socket is not live, trainees must first test the electrical socket and safely remove it before continuing traverse of the navigable path.

Referring now to FIG. 2 and FIG. 3, in an exemplary embodiment, trainees next encounter a web of rope entanglements 154 that simulate a collapsed drop-ceiling. In office buildings for example, drop-ceilings typically rest on a framework of suspended thin metal wire. Drop-ceiling panels typically conceal large quantities of electrical wiring and loops of computer network cable. After a structural collapse, these masses of electrical wire and computer cable often hamper rescue operations as they easily snare the air-packs and other equipment of the emergency personnel. The rope entanglements located in the navigable path are configured to simulate this scenario. In the exemplary embodiment, a first loop is connected to a top plate and sole plate such that it contains several swales. A second loop of rope is similarly configured but is positioned such that the swales are perpendicular to the first loop. The ropes are typically comprised of a material having a high-tensile strength, but that can be cut without use of specialized tools or otherwise secured, to allow passage through the entanglements without impediment. In an alternate configuration, ropes are connected to the top plate only and hang down in large swales.

In an alternate exemplary embodiment, the web of entanglements 154 can be removed through a side door, and replaced by a mortar-based or pre-poured concrete wall 134. The concrete or mortar-based wall 134 obstructs a majority of the navigable path and is configured such that at least a majority of the wall must be substantially breached before continued traverse. Trainees use a jackhammer or similar tool to demolish the obstruction.

In an exemplary embodiment, trainees next pass over a series of 2 inch by 8 inch beams 136 arranged on 16 inch centers. The beams are configured to simulate the difficulty of traversing exposed joists.

In an exemplary embodiment, trainees are next presented with a repositionable plank 140. In an exemplary configuration the repositionable plank 140 is configured such that it completely blocks access to the stairs 138. The repositionable plank 140 is held in place by a locking means such as pin bolts for example. At the same time, partition opening 142 is fully accessible and allows passage between alternate sides of the simulator. In an exemplary training simulation mode, when trainees encounter the repositionable plank 140 configured such that access to the stairs 138 is blocked, they are then forced to traverse through the partition opening 142 and back through the lower left side of the simulator. After passing back to the lower left side of the simulator, trainees encounter hinge-mounted repositionable plank 126 in the closed position. This forces trainees to return to the right side of the trailer before

said weights being configured such that, after repositioning the plank in order to traverse said movable path, said weights bias the plank to return the plank to substantially obstruct the navigable path.

21. The mobile collapsed building simulator according to claim 1 wherein the navigable path further includes stairs connecting the vertical levels.

22. The mobile collapsed building simulator according to claim 1 wherein said plurality of obstacles configured within the navigable path comprises:

at least one plank located in the navigable path being configured to be repositioned to alter the course of the navigable path.

23. The mobile collapsed building simulator according to claim 22 wherein said plank located in the navigable path is configured within at least one of said plurality of partitions.

24. The mobile collapsed building simulator according to claim 1 wherein said navigable path comprises a removable floor plank located on an upper one of the at least two vertical levels;

said removable floor plank defining a void; and

said void being configured to allow access to a lower one of at least two vertical levels.

25. The mobile collapsed building simulator according to claim 1 further including:

pipng for delivering compressed air to the navigable path by pipe to simulate a gas leak;

a shut-off valve, coupled to the piping and located on a lower vertical level of the at least two vertical levels; and

at least one opening in the pipe, simulating a leak, configured on an upper vertical level of the at least two vertical levels.

26. The mobile collapsed building simulator according to claim 1 wherein the navigable path further comprises

a plurality of cameras mounted in the navigable path wherein

said plurality of cameras are selected from the group consisting of:

visible light cameras, thermal cameras, infra-red cameras, and night-vision cameras.

27. The mobile collapsed building simulator according to claim 26 wherein said plurality of cameras are used to monitor, track, teach and critique trainees.

28. The mobile collapsed building simulator according to claim 1, further comprising one or more sets of outriggers configured to shift an orientation of the trailer body.

29. The mobile collapsed building simulator according to claim 1, wherein said plurality of obstacles configured within the navigable path comprises:

a plank substantially restricting a height of the navigable path;

said plank being connected to a weight;

wherein the height of the navigable path is narrowly defined by a portion of the plank to require traverse in a crouched or crawling position under the plank to simulate a floor drop.

exiting the simulator. As they attempt to return to the right side of the trailer, they pass through restricted partition opening 144. The opening is restricted by a wooden beam mounted diagonally across the restricted partition opening 144. This restriction forces most trainees to remove their breathing apparatus from their backs before proceeding toward to the exit door 148.

Referring now to FIG. 2 and FIG. 3, in an alternate exemplary training simulation mode, trainees encounter the repositionable plank 140 configured such that access to partition opening 142 is blocked and access to the stairs 138 is permitted. Trainees proceed up four stairs to a landing located on the second level 121 of the simulator. The stairs are approximately 7¼ inches by 11 inches, a standard configuration for stair dimensions. There is a landing 168 approximately 96 inches by 38 inches, located at the top of the stairs 138.

Referring now to FIG. 3 and FIG. 4, in an exemplary embodiment, as trainees traverse the upper left side of the trailer, trainees next encounter a first wood framework 116 that is configured to simulate a collapsed roof. The wood structure is approximately a 72 inch by 44 inch roof-like framework 116 consisting of plywood mounted on 2 inch by 6 inch joists. All of the beams of one end of the framework have been bored in order to accept a pipe that serves as a hinge for the framework. The pipe is used because traditional hinge configurations are not strong enough to support the framework. In an exemplary embodiment, the first wood framework 116 is configured such that the pipe hinge is mounted parallel to the navigable path. The pipe hinge and first wood framework 116 are mounted such that the wood framework impedes the navigable path at a steep angle. The free end of the first wood framework 116 rests on small blocks that allow limited access for insertion of cribbing material. Weights are optionally affixed to a portion of the framework to make it difficult to lift the structure without specialized tools. Trainees then elevate and stabilize the first wood framework 116 in order to continue traverse the navigable path.

Referring again to FIG. 3 and FIG. 4, as trainees continue along the upper left side of the trailer they traverse a field of debris 118 that makes the navigable path non-negotiable. The debris consists, for example, of assorted odd-shaped pieces of wood 124, some of which have been bolted together. The debris is substantially unpainted. Trainees then decide which pieces of debris only need to be moved out of the way, and which pieces are to be physically removed from the simulator before continued traverse of the path. Debris that is to completely removed from the simulator is transported by trainees all the way back along the navigable path to the exit of the trailer at the back on the lower right side. Although only a few pieces of debris are shown in FIG. 4, it is contemplated that the debris may be sufficient to substantially cover the floor or even to substantially block at least the entrance to the debris field. In another exemplary embodiment, the simulator may comprise additional debris fields.

Referring now to FIG. 5, in an exemplary embodiment, as trainees finish traversing the upper left side of the trailer they pass through a restricted opening 156. A plurality of beams 510, 512 and 514 are configured such that at least a portion of each beams lies diagonally across the navigable path. In an exemplary embodiment, this restriction requires trainees to contort their bodies as they traverse the restricted opening.

In an exemplary embodiment, after the debris field, trainees encounter an open space that trainees typically traverse without issue. However, in an advanced exemplary training simulation mode, this open space contains an approximately 24 inch by 24 inch removable plank that serves as a hatch 152. This hatch 152 is located in the floor of the upper right side of the trailer, and can be removed for a rescue simulation that involves the evacuation of a fellow rescuer who has fallen to the lower level 120. Advanced trainees secure the individual to a backboard and then hoist the backboard up through this opening and then traverse the navigable path in reverse to the exit on the lower right side of the trailer. For further realism, the fallen rescuer may be positioned in, or adjacent to the rope entanglements 154.

In an exemplary embodiment, advanced trainees may also be required to locate victims trapped under a second simulated collapsed roof. This second wood framework 150 is similar in design to the first wood framework simulating a roof collapse

30. The mobile collapsed building simulator according to claim 1, wherein said plurality of obstacles configured within the navigable path comprise:

a pipe extending substantially parallel to a longitudinal axis of the trailer body, the pipe including at least one bend relative to a length of the pipe,

wherein traverse through the pipe simulates traverse through a sewer pipe.

31. The mobile collapsed building simulator according to claim 1, wherein said navigable path comprises a vertical pipe extending from a roof of the trailer body to a lower level of the at least two vertical levels; said vertical pipe configured to allow access to the lower vertical level.

32. The mobile collapsed building simulator according to claim 31, further comprising a sewer pipe assembly configured to be attached to the lower vertical level in the vicinity of the vertical pipe;

wherein traverse through said vertical pipe and said sewer pipe assembly simulates a sewer line rescue.

33. The mobile collapsed building simulator according to claim 31, wherein the sewer pipe assembly includes at least one of a straight pipe section, a t-shaped pipe section or an end cap connected in predetermined configuration.

34. A mobile collapsed building simulator comprising:

a generally rectangular trailer body sized to fit within an engine bay of a firehouse;

said trailer body having an interior partitioned into at least an upper vertical level and a lower vertical level;

a plurality of partitions dividing at least one of said vertical levels into a navigable path; and

a plurality of obstacles simulating a collapsed building environment;

said plurality of obstacles containing at least one hinge-mounted framework assembly of joists and beams configured to obstruct the majority of the width of the navigable path; being configured such that a portion is elevated by cribbing before further traverse of the navigable path;

wherein the height of said navigable path is narrowly defined to require traverse in a crouched or crawling position.

35. The mobile collapsed building simulator according to claim 34, further comprising:

a vertical pipe extending from a roof of the trailer body to a lower level of the at least two vertical levels; said vertical pipe configured to allow access to the lower vertical level; and

a sewer pipe assembly configured to be attached to the lower vertical level in the vicinity of the vertical pipe,

wherein traverse through said vertical pipe and said sewer pipe assembly simulates a sewer line rescue.

116 with the exception that the dimensions are reduced to 60 inch by 60 inch for example. The free end of the second wood framework 150 rests on small blocks that allow limited access for insertion of cribbing material. Weights are optionally affixed to a portion of the framework to make it increasingly difficult to lift the structure. The second wood framework is stabilized in order to rescue a trapped victim. In an exemplary embodiment, the framework 150 configured such that the pipe hinge is mounted perpendicular to the navigable path. Typically, the pipe hinge mounting locations of wood frameworks 116 and 150 are transverse to each other. This presents trainees with alternate elevation and cribbing challenges.

In an exemplary embodiment, simulated smoke may be introduced into the simulator to impede vision and make rescue conditions more realistic. A commercially available smoke generator 132 can be located outside of the trailer in the hitch area. A 110-volt power source and liquid smoke are used to produce smoke. The hot tip of the smoke generating means is introduced through the trailer wall to the navigable path.

In an exemplary embodiment, compressed air may be introduced to navigable path via piping 162 to simulate a gas leak. The piping 162 conduit is configured along the structural framework that divides the length of the trailer. Once advanced trainees become aware of the sound of the compressed air they trace the piping to locate a shut-off valve 160 hidden in a concealed portion of the trailer. For example, trainees may detect a gas leak, while traversing the upper vertical level 121. The trainees may then follow a reverse path through the simulator 100 to locate the shut-off valve 160 on the lower vertical level 120. Alternatively, the compressed air may be shut-off by personnel external to the trailer once the trainees have located the shut-off valve 160.

In an alternate exemplary embodiment, cameras 158 such as infra-red, night vision or thermal imaging may be installed in the trailer. A central command post located external to the simulator may be used to monitor the progress of the trainees. Optionally, there may be two-way radio communication between the central command post and trainees. This communication provides improved instruction as instructors can explain proper rescue techniques as well as help trainees who require assistance. The radios may also be used to enhance the realism of the simulator by providing communications typical of an emergency situation.

Referring now to FIG. 6, in an alternate exemplary embodiment, at least one set of outriggers 170 may be configured about the exterior of the trailer 102 to simulate a leaning, shifting, or otherwise unstable building. The outriggers 170 may be operated electrically, mechanically, hydraulically, or manually for example, to shift the trailer 102 before or during rescue simulation modes.

In an alternate exemplary embodiment, auditory signals may be triggered as trainees traverse various points along the navigable path. Examples of the auditory signals optionally include screams, sirens, explosions, and the sound of a collapsing structures.

Referring now to FIG. 7 and FIG. 10, an alternate exemplary embodiment of the mobile collapsed building simulator 100' is provided. The exemplary simulator 100' is the same as simulator 100 except that simulator 100' includes trailer 102' that has approximate dimensions of about 30 feet in length and 8 feet in width. In addition, simulator 100' additionally includes obstacles for simulating a sewer line rescue. The exemplary simulator 100' includes repositionable plank 126, fulcrum-mounted plank 128, dry wall or mortar board 106, wall studs 130, web of rope entanglements 154, concrete or mortar-based wall 134, repositionable plank 140, stairs 138, partition opening 142, restricted partition opening 144, field of debris 118 having pieces of wood 124, second wood framework 150 and hatch 152, which are described above. In addition, simulator 100' includes lower left door 240, restrictive weighted plank 202, pipe 204, beams 206, first wood framework 116', partition 210, vertical pipe 214, first region 216, second region 218, passageway 217, door 212, door 213 and doors 215.

Referring to FIG. 7, trainees typically enter the simulator 100' through lower left door 240. Lower left door 240 is configured as a door and is also configurable to accept a sewer pipe 226, described further below with respect to FIG. 12A. Upon entering the simulator 100', trainees immediately encounter the hinge-mounted repositionable plank 126 that is configured perpendicular to the navigable path such that it completely blocks the navigable path. As described above, the hinge-mounted repositionable plank 126 is configured such that when sufficient force is exerted upon the plank, trainees move the plank aside, and may progress forward along the navigable path.

In an exemplary embodiment, trainees continue to crawl along the navigable path and encounter the first obstacle, the simulated floor drop. Referring to FIG. 8, this exemplary obstacle is an approximately 42 inch wide by 80 inch long restrictive weighted plank 202 that is connected to the bottom of the partition 110 (FIG. 1) which divides the trailer into two vertical levels. The restrictive weighted plank 202 is attached by cable to the ceiling of the trailer at a steep angle. In an exemplary embodiment, the restrictive weighted plank 202 is sloped such that the height of the opening, when continuing along the navigable path, is restricted to 16 inches. In an exemplary embodiment, the restrictive weighted plank 202 is connected to a 60 pound weight. The weight makes it difficult to move the plank and the width of the restrictive weighted plank 202 is nearly the exact width of the navigable path, thereby forcing the trainees to crawl under the restrictive weighted plank 202. The restricted opening at one end of the restrictive weighted plank 202 may be raised or lowered. Additionally plank 202 may be configured to be less than the width of the navigable floor to simulate a partial floor drop.

This restricted opening forces most trainees to remove their breathing apparatus from their backs before proceeding toward to the plank **128**.

Referring back to FIG. 7, in an exemplary embodiment, trainees next encounter the fulcrum-mounted plank **128** that simulates the floor collapse. As described above, the plank **128** may be configured to be less than the width of the navigable path to simulate a partial floor collapse. The trainees next pass through the series of wall studs **130** as they transition from the lower left side to the lower right side of the simulator **100'**. At least a portion of the wall studs may be concealed by dry wall or mortar board **106** that must be demolished before continued traverse along the navigable path.

Trainees next encounter the web of rope entanglements **154** that simulate a collapsed drop-ceiling. In alternate embodiments, the web of entanglements **154** may be replaced by the mortar-based or pre-poured concrete wall **134** that obstructs a majority of the navigable path such that at least a majority of the wall must be substantially breached before continued traverse.

In an exemplary embodiment, trainees next encounter a pipe **204** supported by beams **206**. The pipe **204** is configured to simulate a sewer line. Referring to FIG. 9, a cross section of the pipe **204** is shown. In an exemplary embodiment, the pipe **204** is approximately 128 inches long with a 28 inch diameter. Referring back to FIG. 7, the pipe **204** is configured to include a bend at approximately 66 inches along the length of the pipe. Trainees encounter the pipe **204** and are forced to crawl through the pipe **204**. The bend in the pipe forces the trainees to contort their bodies as they traverse the pipe. Although one bend approximately halfway along the pipe **204** is illustrated, it is contemplated that the pipe **204** may be configured with one or more bends at different locations along the length of the pipe.

In an exemplary embodiment, trainees are next presented with the repositionable plank **140** that may be configured to block access to the stairs **138**. As described above, when access to the stairs **138** is blocked by repositionable plank **140**, the trainees are forced to traverse through the partition opening **142** and back through the lower left side of the simulator. The trainees then encounter repositionable plank **126** in the closed position. The trainees are forced to return to the right side of the trailer. The trainees first pass through restricted partition opening **144** and exit the simulator by exit door **148**.

Referring now to FIG. 10, in an alternate exemplary training simulation mode, trainees encounter the repositionable plank **140** configured such that access to the stairs **138** is permitted. Trainees proceed up four stairs to the landing **168** located on the second level of the simulator **100'**.

In an exemplary embodiment, door **212** is configured to allow access to first region **216**, door **213** is configured to block access to second region **218** and doors **215** are configured to block access to passageway **217**. In an exemplary embodiment, door **212** is approximately 32 inches wide and doors **213** and **215** are each approximately 15 inches wide. The doors **212**, **213** and **215** have no handles and may be weighted such that trainees cannot traverse through the second region **218** blocked by door **213** and through the passageway blocked by doors **215**.

In an alternative embodiment, door **212** may be configured to block access to the first region **216** and the door **213** may be configured to allow access to the second region **218**. In addition, doors **215** may be configured to allow access to the passageway **217**. The trainees pass through the second region **218** and then through the passageway **217** toward first region **216**. In an exemplary embodiment, the passageway is approximately 6 feet long.

As illustrated in FIG. 10, the second region **218** is non-rectangular shaped and includes an obstacle created by vertical pipe **214** that extends from the roof to the first vertical level **120** of simulator **100'** (described further below with respect to FIG. 11 and FIG. 12). The vertical pipe **214** forces trainees to contort their bodies as they pass through the second region **218**. In an exemplary embodiment, the vertical pipe **214** produces a passable space in the second region **218** that is approximately 15 inches wide. The restricted opening by door **213** forces most trainees to remove their breathing apparatus from their backs before proceeding through the second region **218**. Similarly, the restricted opening by doors **215** forces most trainees to remove their breathing apparatus before traversing through passageway **217** and into the first region **216**.

As trainees continue to traverse the upper left side of the trailer, trainees next encounter a first wood framework **116'** that is configured to simulate the collapsed roof. The first wood framework **116'** is the same as the first wood framework **116** except that the first wood framework **116'** is approximately 39 inches by 60 inches. As described above, trainees elevate and stabilize the first wood framework **116'** in order to continue traverse of the navigable path.

As trainees continue along the upper left side of the trailer they traverse the field of debris **118** that makes the navigable path non-negotiable. As described above, the debris consists, for example, of assorted odd-shaped pieces of wood **124** where the debris may be sufficient to substantially cover the floor or even to substantially block at least the entrance to the debris field.

As trainees finish traversing the upper left side of the trailer they encounter partition **210** that substantially blocks the exit from the field of debris **118**. In an exemplary embodiment, the partition **210** is approximately 44 inches long by 44 inches high and consists of dry wall. At least a portion of the partition **210** must be demolished before continued traverse along the navigable path.

In an exemplary embodiment, after the partition 210, trainees traverse a second field of debris, illustrated by piece of wood 124. Although only one piece of debris is shown in FIG. 10, it is contemplated that the debris may be sufficient to substantially cover the floor.

In an exemplary embodiment, trainees next encounter an open space that trainees typically traverse without issue. In an advanced exemplary training simulation mode, this open space contains a removable plank that serves as the hatch 152. As described above, the hatch 152 can be removed for a rescue simulation that involves the evacuation of a fellow rescuer who has fallen to the lower level of simulator 100'.

In an exemplary embodiment, advanced trainees may also be required to locate victims trapped under the second wood framework 150 that simulates a second collapsed roof. As described above, the trainees stabilize the second wood framework 150 in order to rescue a trapped victim.

After completing the navigable path on the second vertical level, the trainees may traverse a reverse path through the second floor toward the stairs 138. The trainees crawl down the stairs 138 and continue in a reverse path through the first vertical level as described above with respect to FIG. 7 toward exit door 148 or door 240.

In an exemplary embodiment, compressed air may be introduced into the navigable path to simulate a gas leak where, in FIG. 10, a shut-off valve 160' is located in the field of debris 118. As described above, advanced trainees become aware of the sound of the compressed air and locate the shut-off valve 160'.

Referring now to FIG. 11A and FIG. 11B, in an exemplary embodiment, simulator 100' includes a rescue simulation of a victim trapped in a sewer line. In an exemplary embodiment, an end of sewer pipe 226 is attached to lower left door 240 by a ring and clamp. A person 232 representing a trapped victim is positioned within sewer pipe enclosure 230. An end of the sewer pipe enclosure 230 is configured to be connected with opening 228 of sewer pipe 226. Sewer pipe 226 and sewer pipe enclosure 230 may form a sewer pipe assembly. In an exemplary embodiment, the sewer pipe 226 is approximately 20 feet long and has a diameter of approximately 30 inches.

In this exemplary embodiment, the sewer pipe enclosure 230 includes straight sections of pipe 236, a t-shaped section of pipe 234 and end caps 238. One or more of the end caps 238 may be removed in order to connect the sewer pipe enclosure 230 to sewer pipe 226. Although the sewer pipe enclosure 230 is illustrated as shown in FIG. 12B, it is understood that the straight section of pipe 236 and t-shaped section of pipe 234 may be configured in any suitable arrangement, including more than one t-shaped section of pipe 234. It is contemplated that the sewer pipe enclosure 230 may also include a bend section of pipe, such as pipe 204 shown in FIG. 7. In an exemplary embodiment, the sections 234 and 236 are each approximately 8 feet long and have a diameter of approximately 30 inches.

Trainees typically climb the ladder 222 to the roof of the trailer 102'. The roof of the trailer 102' includes rails 224 that form the observation deck 242. In an exemplary embodiment, the ladder 22 is approximately 9 feet long and 24 inches wide and the observation deck 242 is approximately 8 feet wide and 8 feet long. An opening 220 in the roof of the trailer 102' includes the vertical pipe 214 that extends to the first vertical level in the vicinity of the lower left door 240. In an exemplary embodiment, the vertical pipe 214 has a diameter of approximately 26 inches. The trainees descend vertical pipe 214 to the first vertical level in order to reach the sewer pipe 226 connected to the lower left door 240. A plug 244 is positioned within the vertical pipe 214 between the first and second vertical levels 120 and 121 to block passageway to the first vertical level 120. Trainees first remove the plug 244 before entering the first vertical level 120. The exemplary simulator may include a tripod and a hoist (not shown) to lower trainees down the vertical pipe 214 and to raise trainees and a trapped individual 232 up through the vertical pipe 214.

The trainees traverse through the sewer pipe 226 and then through the sewer pipe enclosure 230 to locate the individual. The trainees then secure the individual to a backboard and again traverse through the sewer pipe enclosure 230 and sewer pipe 226 to the first level of the trailer 102'. The trainees then hoist the backboard up through the vertical pipe 214 to the observation deck 242 of the trailer 102'.

Although the present invention has been described in terms of exemplary embodiments, it is contemplated that it may be practiced as described above with modifications within the scope of the following claims.

PATENT CITATIONS

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US4526548	Nov 1, 1984	Jul 2, 1985	Tifa Limited	Mobile firefighter training equipment
US4971377	Feb 21, 1990	Nov 20, 1990	Aquilante; Anthony	Efficient food delivery system
US5173052	Sep 17, 1991	Dec 22, 1992	Duncan Associates, Inc.	Fire safety training trailer for children
US5203707	Jan 6, 1992	Apr 20, 1993	Kidde Fire Trainers, Inc.	Modular fire trainer
US5226818	Nov 25, 1991	Jul 13, 1993	Aai Corporation	Firefighter training system with thermal agent detection

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US5573300	Dec 19, 1994	Nov 12, 1996	Security Bank N.A. Garland	Utility vehicles with interchangeable emergency response modules
US5752835	Apr 8, 1997	May 19, 1998	Whitmer, Jr, Michael Anthony And Whitmer, Melissa Christine, Each As To A Fifty-Percent(50%) Interest;	Mobile fire fighting training facility
US5927990	Apr 1, 1998	Jul 27, 1999	Dingillo; Mike	Firefighting trainer
US6179620	May 6, 1999	Jan 30, 2001	Schmid Bernd	Firefighter training building model
US6799975	Jul 29, 2002	Oct 5, 2004	Emergency Response Training, Inc.	Modular confined space rescue training simulator
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US7074043	Jun 8, 2004	Jul 11, 2006	Jacobson Damon	Mobile firefighting flashover training unit and arson investigation lab & method of fabricating same
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NON-PATENT CITATIONS

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1	Tom Gallagher Press Release, http://www.fldfs.com/pressoffice/ViewMediaRelease.asp?ID=2178 , Nov. 30, 2005.
2	Training Division-Effingham Fire Department-Effingham Illinois http://www.effinghamil.com/government/fire-dept/training.html , Oct. 2, 2006.
3	Training Division—Effingham Fire Department—Effingham Illinois http://www.effinghamil.com/government/fire—dept/training.html , Oct. 2, 2006.

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US7967326	Nov 3, 2008	Jun 28, 2011	Jersey Tactional Corp.	Tactical breaching demonstration trailer
US8360782	Sep 18, 2009	Jan 29, 2013	Temple Rodney G	Firefighting training apparatus
US20100139887	Nov 25, 2009	Jun 10, 2010	Io Data Centers, Llc	System and Method of Providing Computer Resources

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Byrnes, Terry

From: Kerry Oswald <ko1@kennett.net>
Sent: Thursday, April 18, 2013 9:38 AM
To: Byrnes, Terry
Subject: "Guardian" Safety and Survival System Simulator,
Attachments: Guardian online.pdf

Hi Terry,

It was great speaking with you this morning.

As per your request, PPES has provided Quote #220-11 for the total sum of \$203,637.71 to Miami Fire Department and this price will stand with delivery and paid in full.

Also attached is information reference the "Guardian".

Please do not hesitate to contact me if you need anything further.

Regards

Kerry Oswald
Sales Director
"Guardian" Safety and Survival System Simulator
109 Liberti Lane
Lincoln University PA 9352
O: 1 800 736 2388
C: 484 432 0577
E: KO1@Kennett.net
www.ppes.us



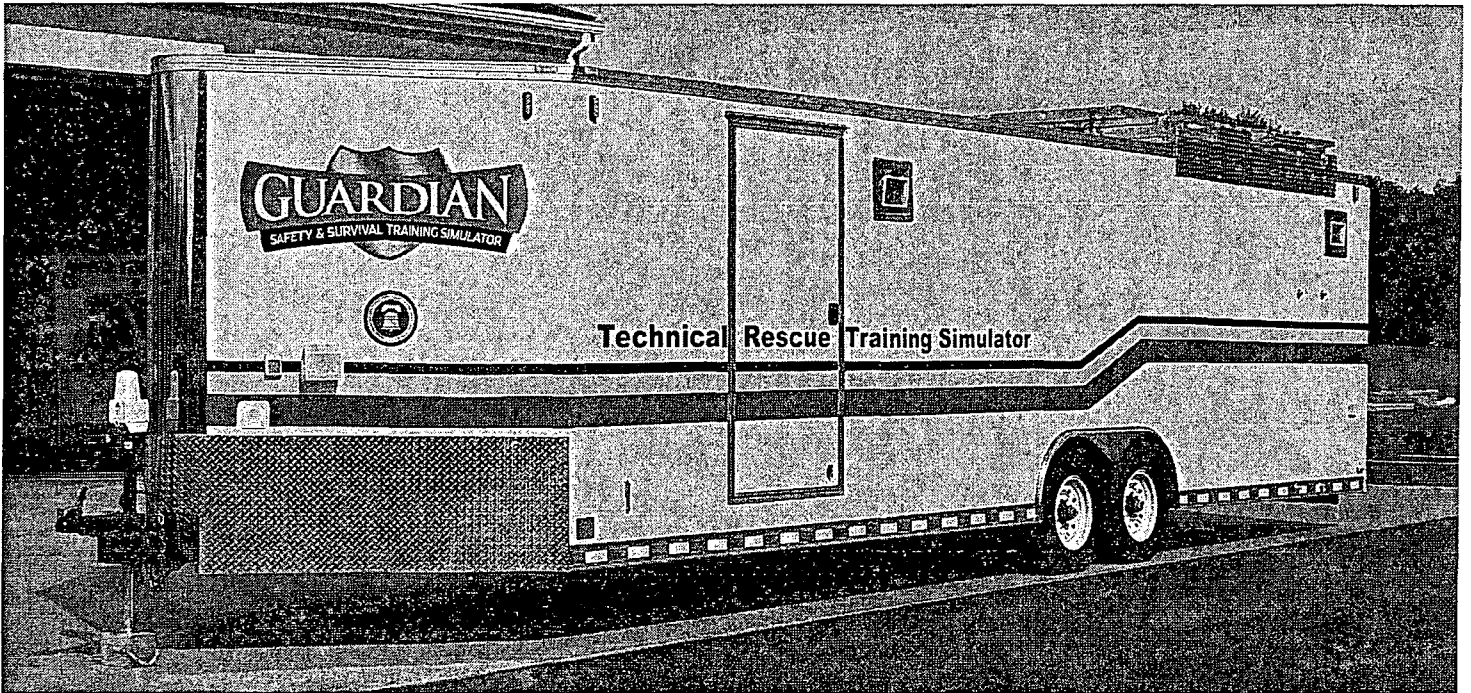
Lesson of 9/11:

Real-life training saves lives!

GUARDIAN

SAFETY & SURVIVAL TRAINING SIMULATOR

The First Choice of First Responders



Lesson of 9/11:

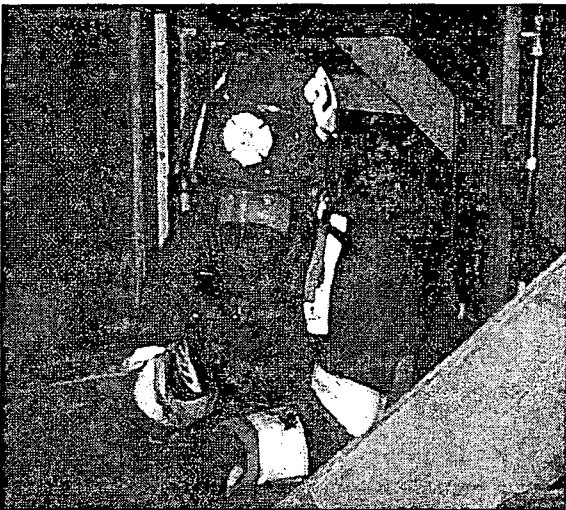
Real-life training saves lives.

The tragedy of 9/11 made clear that anything other than real-life training is not an acceptable strategy for search and rescue preparedness. Ten years after that fateful day, our nation's first responders still find themselves hindered by the limited opportunities to receive vital real-life-experience training required to deal with such crisis situations – until now.

For the first time

the effects of earthquakes, explosions, cave-ins and fires can be experienced as a real-life situation in a controlled, safe environment. Introducing the GUARDIAN, a mobile training simulator able to re-create over 200 disaster scenarios that first responders are likely to encounter. Trainees will crawl through a simulated pancaked building on a mission to rescue a trapped victim, giving them hands-on experience in stabilizing collapsed environments, shoring up flooring, containing gas leaks and extricating victims from life-threatening environments – in conditions that have been referred to as being “as real as it gets.”

Real-life training has never been safer (or more affordable!)



As real as it gets

For the first time, the effects of earthquakes, explosions, cave-ins and fires can be experienced as a real-life situation in a controlled, safe environment. Introducing the GUARDIAN®, a mobile training simulator able to re-create over 200 disaster scenarios that first-responders are likely to encounter. Trainees will crawl through two levels of a simulated pancaked building on a mission to rescue a trapped victim, giving them hands-on experience in stabilizing collapsed environments, shoring up flooring, containing gas leaks and extricating victims from life-threatening environments. Hindered by limited visibility, smoke and debris, and encumbered by pounds of protective gear and bulky breathing apparatus, trainees learn the essential value of teamwork and strategizing under conditions that have been referred to as being “as real as it gets.”

Importance of teamwork

In addition to providing a real-life experience, the GUARDIAN® forces first-responders to strategize and work as a team as they crawl through the narrow spaces filled with debris while hindered by limited visibility and encumbered by pounds of protective gear and bulky air packs. Only by working together as a team will they be able to achieve their life-saving and survival objectives.

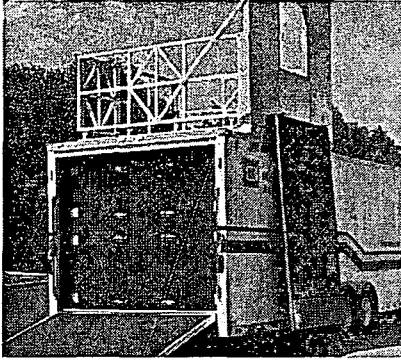
Safety first

The GUARDIAN® provides first-responders the real-life experience needed for effective rescue operations. No other product on the market provides such a high-level of startlingly authentic realism in a completely safe environment.

Go anywhere

Designed to be easily transported using a standard pickup truck or van, the GUARDIAN® can go wherever it is needed. Upon arrival, set-up is quick and easy, usually in less than an hour.

Individually designed and built to meet YOUR requirements



Whether designed for use by FEMA Urban Search & Rescue operations, terrorist task forces, Federal law enforcement, emergency medical service providers or local volunteer firefighters, the GUARDIAN® can be configured and customized to reflect over 200 rescue scenarios. Available in either a 24' or 30' trailer divided into two floors, the standard GUARDIAN® re-creates a three-story building with the third story collapsed into the second creating a "pancaked" effect.

Additional options allow for the flexibility that makes the GUARDIAN® an ideal real-life training module for use by a broad range of first-responders. Air pistons can simulate after-shocks and structural settling. Additional modules can allow for training in a window-rescue situation, cement wall breaching or a sewer line escape can be incorporated in the simulator.

Standard Features Exterior:

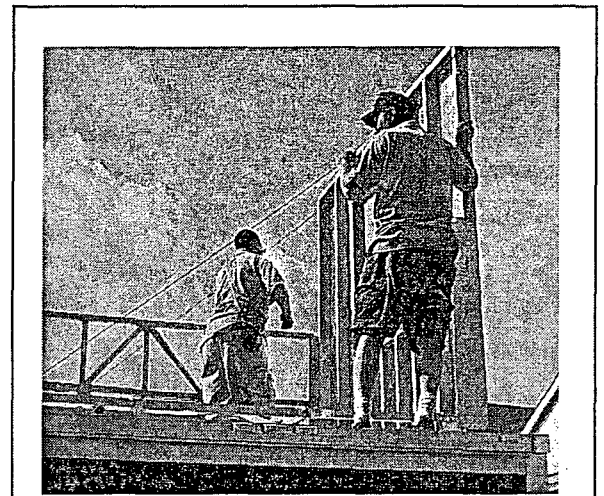
- ◆ Patented dust proof sidewall design
- ◆ Chip resistant undercoating
- ◆ Dexter (ITS) independent torsion suspension wide track axles
- ◆ EZ lube hubs
- ◆ Modular-styled wheels with E-coat prime and powder-coated finish
- ◆ Aluminum fenders
- ◆ All wheel electric brakes with 12v breakaway switch and battery, safety chains welded or bolted in place, TPO front cap
- ◆ Frames are phosphate powder washed
- ◆ All exposed metal is painted with premium quality paint
- ◆ Long-life coating on fasteners
- ◆ Side ramp door with flush lock and stainless steel piano hinge
- ◆ 3/4" plywood floor, 3/8" plywood interior walls
- ◆ Nuts on all doors
- ◆ Automotive-style weather stripping
- ◆ High-tech roof sealant, 6" I-beam frame (8" I-beam frame on models 26' and over), 16" on-center cross members
- ◆ Lauan finished ceiling
- ◆ Truck body flat top design
- ◆ ABS molded license plate holder with built-in light
- ◆ Conspicuity treatment on all TA3 Models
- ◆ 0.040 exterior metal with 16" on-center wall posts
- ◆ Standard tow package
- ◆ 11 standard colors available

Standard Features Interior:

- ◆ Totally darkened interior, painted with light absorbing flat-finish black paint
- ◆ Two floors
- ◆ Set of stairs
- ◆ Breach wall
- ◆ Rope entanglement
- ◆ Open floor joists
- ◆ Teeter-totter
- ◆ Smoke machine for all levels for training and TIC evolutions

Manufacturing time:

Basic unit construction time is approximately 90 days from date of contract signing. Add-on options require additional time.



Options & Training Kits

Window-rescue Roof Kit

Earthquake Aftershock Kit

Sewer-line Rescue Kit

Concrete and Drywall Breaching Kit

Railcar Training Dome

External Command Center
pre-wired for electronic
monitoring and control

Infrared Camera Viewing Kit

Internal Surround-sound System
with realistic sound effects matching
specific training scenarios

Power Vents for quick-removal
of smoke

Training Utilizing the Guardian®



The Guardian Safety and Survival Training Simulator® is a fully mobile unit that is available for purchase or for personalized training sessions seven days/week – morning or evening, half days or full. It is easily transported to your location and allows first responders to receive the vital real-life-experience training required to deal with many of the crisis situations they are likely to encounter.

Earthquakes, explosions, cave-ins and fires – all can now be experienced as a real-life situation in a controlled, safe environment. Trainees will crawl through two levels of a simulated pancaked building, giving them hands-on experience in stabilizing collapsed environments, shoring up flooring, containing gas leaks and extricating victims from life-threatening environments under conditions that have been referred to “as real as it gets.”

First-responder training scenarios include:

- ◆ SCBA confidence training
- ◆ Advanced fire fighter search and survival
- ◆ Advanced rescue of trapped victims
- ◆ Packaging of the victim
- ◆ Victim searches, shoring, cribbing, jacking, breaching, packaging of victims under total darkness with or without smoke
- ◆ Downed fire fighter rescue, emergency air replacement by RIT/RIC transfill, buddy breathing and air cylinder shuttles
- ◆ Search and rescue with and without thermal imaging
- ◆ Rapid Intervention Crew Training
- ◆ Collapsed building with hazardous materials

Classes are available in 8-hour and 16-hour sessions

Certified and non-certified training is available.



Two-man team entering the GUARDIAN Training Simulator.



Removing debris.



Shoring up collapsed flooring.

Extracting victim.

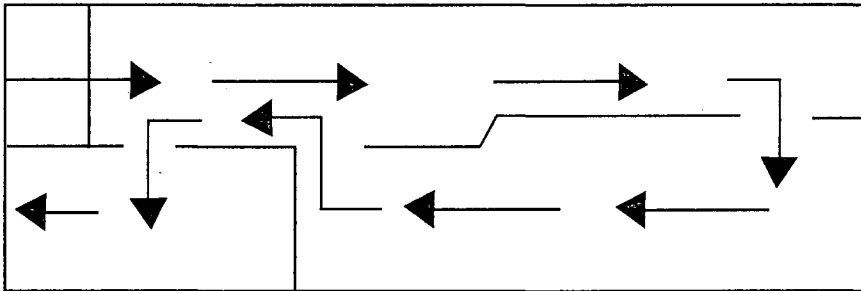
SCENARIO 1: Familiarization - Required pass for all other scenarios

Takes 2-person teams approximately 10-15 mins.

Required tools: Turnout gear/protective clothing, gloves, boots, head protection and SCBA.

Optional special training tools required: RIT bags and airline connection.

Note: an EMT or medic is required on-site.

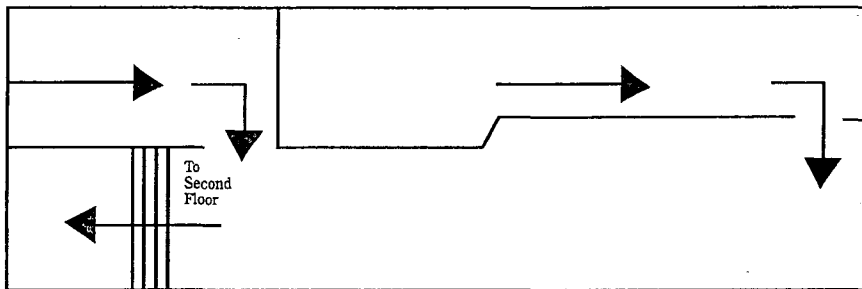


SCENARIO 2: One victim trapped

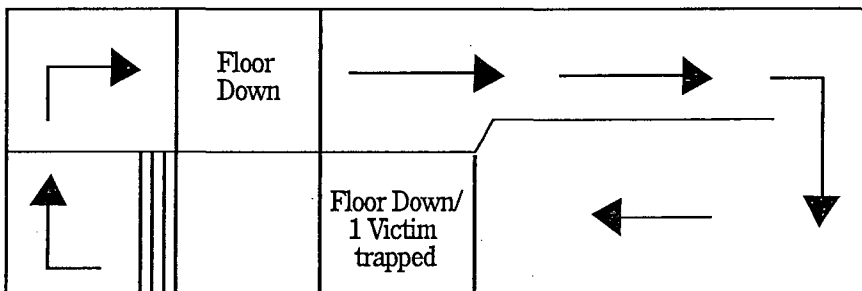
Takes 20-30 first-responders approximately 1.5 hours

Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, 1st Responder starter cribbing kit or equivalent, skid sled, backboard or stokes basket, rope, hand lights and spare air bottles.

Note: A command post, EMS, and accountability station are required on-site.



First Floor



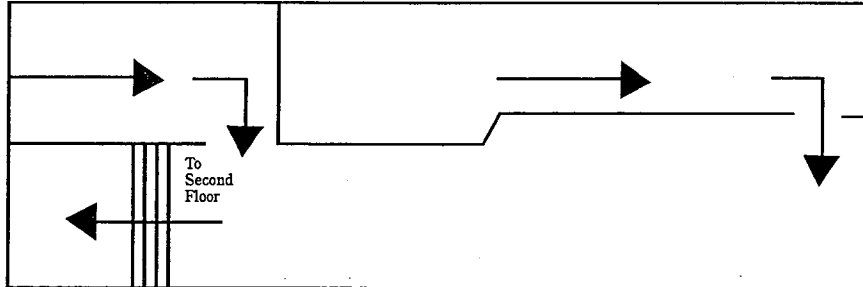
Second Floor

SCENARIO 3: Two victims trapped

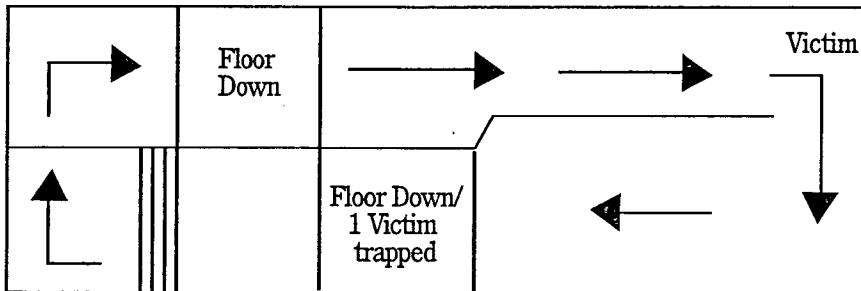
Takes 30-35 first-responders approximately 2.0 hours

Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, porta power, at least one heavy duty rescue cribbing kit or equivalent, skid sled, backboard or stokes basket, rope, at least ten hand lights and spare air bottles.

Note: A command post, EMS, and accountability station are required on-site.



First Floor



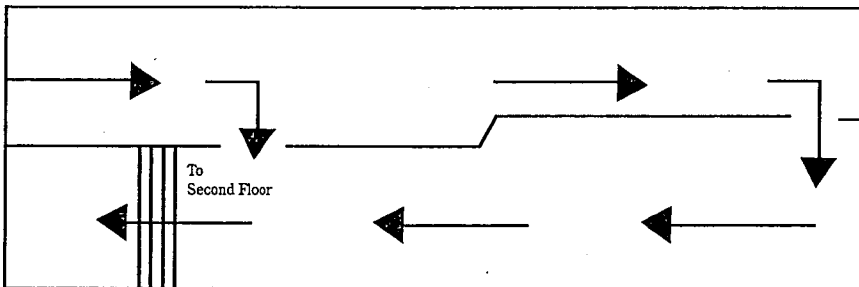
Second Floor

SCENARIO 4: Fire Fighter collapsed through floor

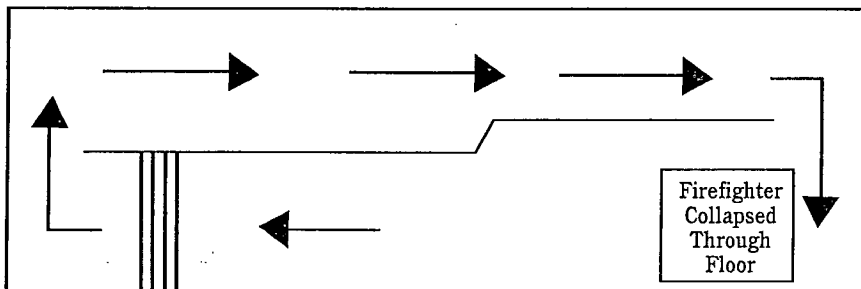
Takes 35-45 first-responders approximately 1.5-2.5 hours

Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, porta power, at least one heavy-duty rescue cribbing kit or equivalent, skid sled, backboard or stokes basket, rope, at least ten hand lights and spare air bottles.

Note: A command post, EMS, and accountability station are required on-site.



First Floor



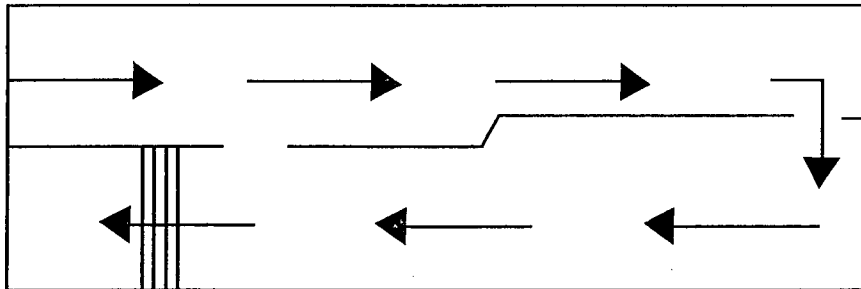
Second Floor

Scenario 5: Long scenario with one victim

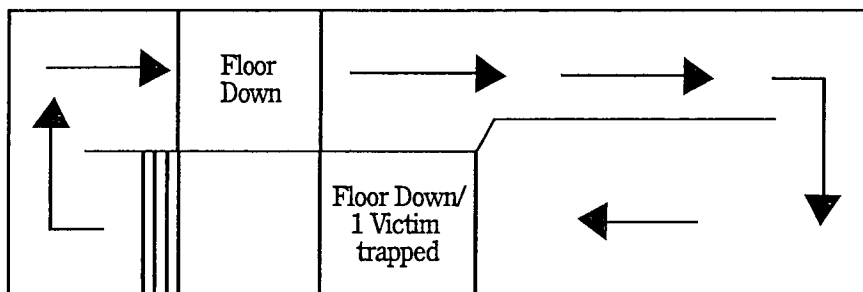
Takes 50+ first-responders approximately 3-4 hours

Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, porta power, at least three heavy-duty rescue cribbing kits or equivalent, skid sled, backboard or stokes basket, rope, at least fifteen hand lights, spare air bottles, come-a-long and tools to shut down gas lines. Air bags (optional).

Note: A command post, EMS, and accountability station are required on-site.



First Floor



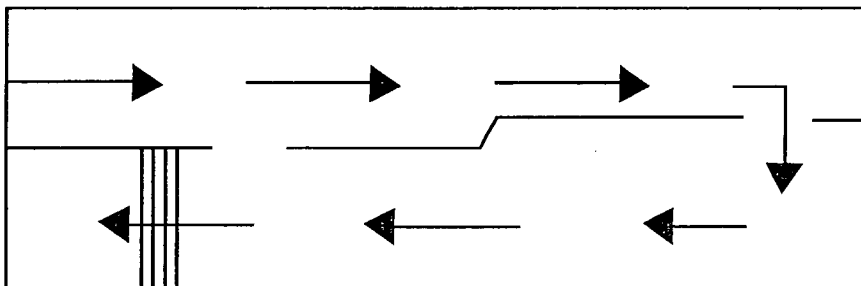
Second Floor

Scenario 6: Long scenario with three victims

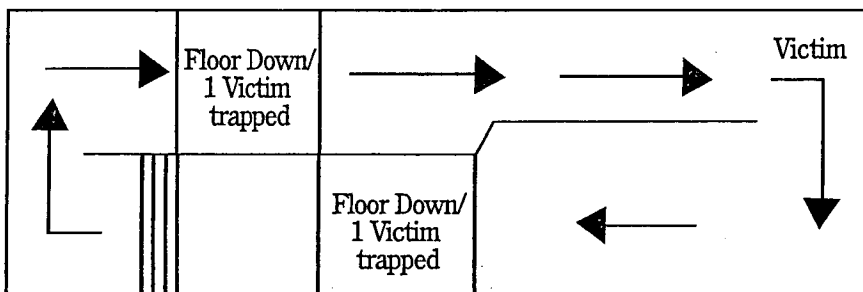
Takes 60+ first-responders approximately 4-5 hours

Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, porta power, at least three heavy-duty rescue cribbing kits or equivalent, skid sled, backboard or stokes basket, rope, at least fifteen hand lights, spare air bottles, come-a-long and tools to shut down gas lines. Air bags (optional).

Note: A command post, EMS, and accountability station are required on-site.



First Floor



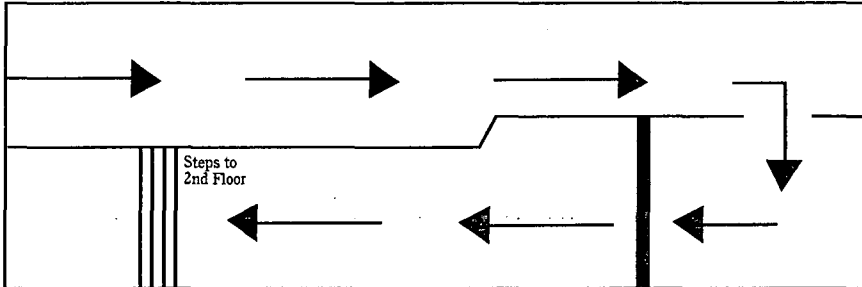
Second Floor

Scenario 7: Concrete wall trapping two victims

Takes 60-100 first-responders approximately 5-7 hours

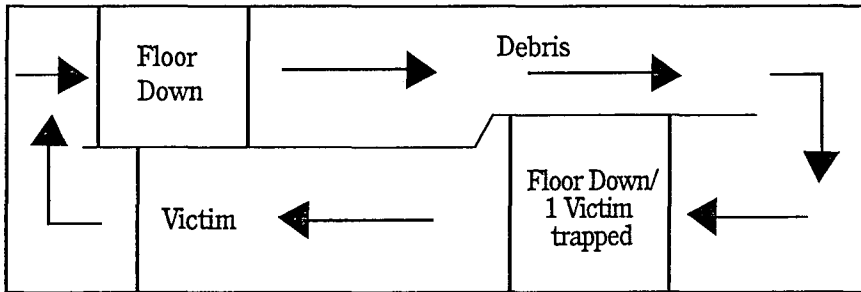
Required tools: Turnout gear/protective clothing, gloves, boots, head protection, SCBA, hydraulic jacks, porta power, at least three heavy-duty rescue cribbing kits or equivalent, skid sled, backboard or stokes basket, rope, at least fifteen hand lights, spare air bottles, come-a-long, tools to shut down gas lines, 5-gallon buckets for removing debris, electric or air jackhammers, short handled shovels, short column supports, bolt cutter, reciprocating saw, air or electric rotary hammer. Air bags (optional).

Note: A command post, EMS, and accountability station are required on-site.



First Floor

Concrete Wall 2 1/2" thick with Steel Rod and Wire



Second Floor

In the words of those who have trained on the **GUARDIAN**



"The rescue dogs froze when the simulator started rocking like an earthquake. Now they've been trained to know what to expect."

- Rex and Ace's handler



"The perfect tool to teach you how to get out alive."

- Craig Vannatta
Fire Captain
High Bridge Fire Department



"A great benefit for all fire companies."

- Robert Elwell
Lieutenant
Cape May Fire Department



"A really positive learning experience."

- Arthur Hayden
Fire Captain
Erma Fire Department

"This is as real as training can get."

Firefighter from Rescue Fire Company

"Very good training. It helped me to get to know a lot of people. It will help me in the future."

Firefighter from Burlington Twp. Fire Department

"This training is something every department should go through."

Firefighter from Harmonville Fire Company

"This is one of the best training drills I have ever attended. Bravo!"

Firefighter from Clinton Boro Fire Department

"This would be a great benefit for all fire companies."

Firefighter from Briarcliffe Fire Company

"I just wanted to thank you again for coming down and putting on an excellent training at our neighboring fire company. I participated in the class on 18 Nov at the Gilbertsville Fire and Rescue Company. I had an absolute blast and gained a lot of valuable experience and knowledge from that "little 24' trailer," which I'm willing to say every one of us learned to respect. I heard talking about having you come back in the future and I look forward to it! Until then stay safe, good luck, and keep up the fantastic work!"

Jason "Woody" Wood, New Hanover Fire Company

"Thank you for the use of your trailer this weekend. We put it to great use on Saturday. The trailer was very well put together, and our crews had a heck of a time working in it. They really liked it. Thanks again, and we look forward to using it again in the future."

Jeff Comisiak, Chester Twp. Fire Company

Over 25,000 first-responders have trained in the Guardian®.

Alert Fire Company
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Bangor Fire Company
Beachwood Fire Company
Berwyn Fire Company
Bird-in-Hand Fire Company
Blue Valley Rescue Squad
Brecknock Fire Company
Briarcliffe Fire Company
Brookhaven Fire Company
Burlington Township Fire Department
Cape May City Fire Department
Carneys Point Fire Department
Centeron Fire Department
Charles County Emergency Services -
Tactical Response Team
City of Chester Fire Department
Chester Twp. Fire Company
Christiana Fire Company
Clayton Fire Company
Clinton Fire Department
Collingdale Fire Company
Columbia Fire Company
Columbia Hose Company
Colwyn Fire Company
Darby Boro Fire Company
Deepwater Fire Department
Dillsburg Fire Company
East Lansdowne Fire Company
East Whiteland Fire Company
Elliott Island Volunteer Fire Company
Elmer Fire Department
Erma Fire Department
Essington Fire Company
Exton Fire Company
Fairmount Fire Company
Ferrell Fire Company
Flourtown Fire Company
Franklinville Fire Company
Friendship Fire Company #1 of
Geigertown
Folcroft Fire Company
Gap Fire Company
George Clay Fire Company
Gibbstown Fire Department
Gibraltar Fire Company
Gilbertsville Fire & Rescue Company
Gladwyne Fire Company
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Green Lane Fire Company
Hand-in-Hand Fire Company
Harleysville Community Fire Company
Harmonville Fire Company
Haycock Fire Company
High Bridge Fire Department
Independent Fire Company #1
Indian River Volunteer Fire Company
Intercourse Fire Company
Janvier Fire Company
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Kinzer Fire Company
Lafayette Fire Company
Laurel Lane Volunteer Fire Co.
Lawns Volunteer Fire Company
Lansdowne Fire Company
Lebanon Volunteer Fire Company
Leonardtown Volunteer Fire
Department
Liberty Fire Company
Liberty Fire Company (Lancaster)
Liberty Fire Company #2
Liberty Fire Company (Bangor)
Linkwood Salem Volunteer Fire
Department
Little Creek Fire Company
Logan Fire Company
Malaga Fire Company
Malvern Fire Company
Marmora Volunteer Fire Company
Mechanicsville Volunteer Fire
Department
Millbourne Fire Company
Mitchell Fire Company
Montgomery County Fire Academy
New Hanover Fire Company
New Holland Fire Company
New Hope Eagle Fire Company
Niagara Hose Company
Norristown Fire Department
Norriton Fire Engine Company
North Penn Vol. Fire Company
Oakmont Fire Company
Oreland Fire Company
PA Urban Search and Rescue #2
Parkesburg Fire Company
Parkside Fire Company
Pennsville Fire & Rescue Company
Penn Wynne Overbrook Fire Company
Philadelphia Fire Department
Pine Beach Fire Company
Pitman Fire Department
Plymouth Fire Company
Potomac Heights Volunteer Fire
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Quakertown Fire Department
Quinton Fire Company
Reliance Fire Company
Reliance Hook & Ladder
Rescue Fire Company
Rescue Fire Company #1
Rio Grande Fire Company
Saint Mary's County HazMat
Salem Union Fire Company
Salem City Fire Department
Sayreville Fire Department
Second Ward Fire Company
Secretary Volunteer Fire Company
Skippack Fire Company
S.M. Vauclain Fire Company
South Media Fire Company
Spring Mill Fire Company
Star Cross Fire Company
Swedeland Fire Company
Taylors Island Volunteer Fire Company
Telford Fire Company
Town Bank Fire Department
Tri County Fire Company
Upper Darby Twp. Fire Department
Upper Deerfield Fire Company
Upper Gwynedd Fire Department
Waldorf Volunteer Fire Department
U.S. Coast Guard Fire Department—
Cape May
Villas Fire Department
Vineland Fire Department Station #1
Vineland Fire Department Station #2
Vineland Fire Department Station #4
Washington Fire Department
Washington Twp. Fire Department
Watchung Chemical Engine Company
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“It’s all about safety and survival.”

Throughout our history, our commitment has always been to support the safety and survival of first-responders with the finest name-brand equipment, provide service that’s second to none and maintain a process that keeps us at the cutting edge as technology evolves. Today, this commitment continues.

Tom Quinn, President of PPES



Tom Quinn’s unwavering commitment to meeting the needs of first-responders is the result of a lifetime in the industry, first as a firefighter, later as the founder of PPES. His vision has created new and better ways of search and rescue training. His accumulated knowledge, forged from years in the industry, has put him on the forefront of the new technological advances so vital to the saving of lives.

His many years of expertise was called upon to provide critical support services at Ground Zero, and he came away with even greater respect of the superheroic demands placed on the brave men and women on the frontline of this unimaginable disaster. Determined to create a better way to prepare first-responders, he spearheaded the design of the GUARDIAN®, a unique and innovative mobile training simulator. Today Mr. Quinn, as president of PPES, continues to provide the full range of equipment, training and services first responders require to do their job.

Perhaps there has never been a time in our history when the potential for a disaster has been as high. It can strike at any time, any place, either from a natural or a manmade cause. In today’s world, first-responder preparedness has never been more important. At Personal Protection Equipment Specialists the safety and survival of first responders is our #1 priority. PPES is dedicated to meeting all the needs of first responders in an efficient, effective, pro-active manner. To that end, we offer four areas of expertise:

- ◆ Deliver the full range of quality firefighting, hazmat, rescue and EMS equipment.
- ◆ Offer and coordinate a diverse schedule of personnel training programs.
- ◆ Provide on-your-site equipment certification.
- ◆ Develop, manufacture and market a mobile training simulator that is capable of recreating a multitude of real-life disaster scenarios that first-responders are likely to encounter.

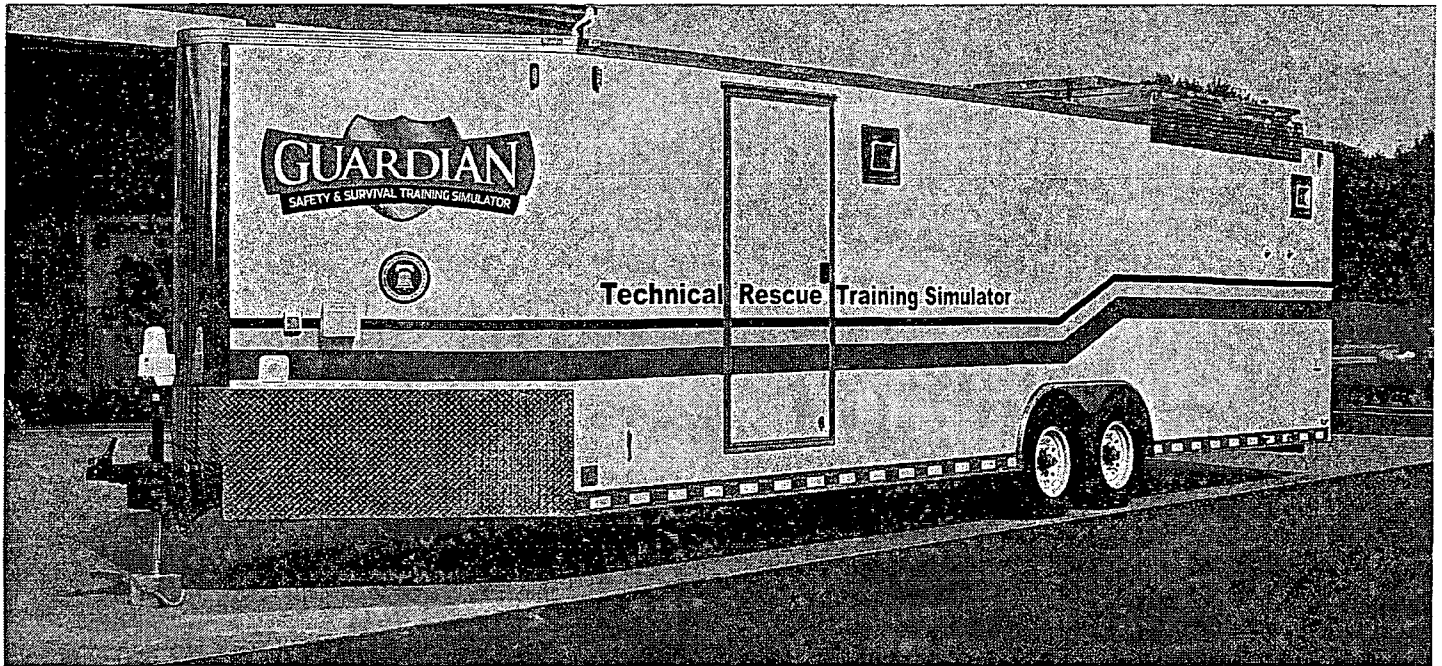
Since 1996, PPES has met the challenge by becoming a one-stop source for the full range of products and services designed for firefighting, law enforcement, FEMA Urban Search & Rescue Operations, terrorist task forces, Federal law enforcement agencies, the military, as well as emergency medical service providers in the municipal, volunteer and Federal government sectors.



Personal Protection
Equipment Specialists

109 Liberti Lane, Lincoln University, PA 19352
Phone: 800-736-2388 Fax: 610-255-3668
www.ppes.us

GUARDIAN® Safety & Survival Training Simulator U. S. Patent # 7,901,212 B2 is manufactured by Personal Protection Equipment Specialists (PPES), a full-service company specializing in meeting the needs of first responders. In addition to the patented GUARDIAN® Safety and Survival Training Simulator, PPES provides rescue and EMS equipment, service, training and certification.



Make the Guardian a mainstay in your disaster-training regimen

Various purchase and rental options are available, including a cost-effective rent-to-own program.

Call PPES for complete details.

Dealerships available

A limited number of exclusive dealerships for this one-of-a-kind training simulator are available for qualified individuals. Contact us for details.



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GUARDIAN® Safety & Survival Training Simulator U. S. Patent # 7,901,212 B2 is manufactured by Personal Protection Equipment Specialists (PPES), a full-service company specializing in meeting the needs of first responders. In addition to the patented GUARDIAN® Safety and Survival Training Simulator, PPES provides rescue and EMS equipment, service, training and certification.



SAFETY SIMULATORS

CRANE SAFETY SIMULATOR

Brought to you by the Operating Engineers Local 324

Provides a realistic reproduction of the visual, behavioral and operational characteristics while making the operation of the simulator extremely simple and intuitive. The simulator provides a virtual non-destructive training environment for accelerated, hands on training to both novice and experienced operators. Trainees can repetitively practice routine and specific tasks to imbibe safe and efficient work practices.

FALL PROTECTION SAFETY SIMULATOR

Brought to you by the UAW Safety and Health Team

Careless or improper use of equipment can result in serious injury or death. Employers and employees should know how to use personal fall arrest systems, including manufacturers' recommendations. Employees should be trained in the selection of personal fall protection equipment.

HAZMAT TRAILER

Brought to you by HazMat Solutions, Inc.

This trailer will be a fully-equipped Hazmat Trailer with an interactive chemical spill scenario on a Big Screen TV.

SIMULATED GRAIN ENTRAPMENT DEMO

Brought to you by Safety and Technical Rescue Association

A SATRA representative will demonstrate how rescue equipment is used during a hands on bin entry/technical rescue.

SLIPPERY SURFACE TRAINER TRAILER

Brought to you by Consumers Energy

The Consumers Energy Slippery Surface Trainer Trailer is used to let employees experience a slip in a controlled environment. The trailer is used along with one other trailer and seven stationary units as a part of a comprehensive classroom and hands-on training session. The concept was developed with guidance from Virginia Polytechnic Institute and State University (Virginia Tech).

Combining motor learning theory with adult learning theory, the "kinetic learning" theory suggests that abstract concepts can be better understood and applied after a foundation of concrete relevant information has been established.

In general, kinetic learning refers to a teaching and learning style in which the learning takes place while performing a similar real-world activity instead of watching movies or slides. These training methods specifically support transfer of training in terms of knowledge (e.g., the nature and location of hazards, in-class setting) and skills (practice in a simulated, real-world setting — i.e., kinetic learning) necessary to proactively reduce occupational falls.

TRACTOR ROLLOVER DEMO

Brought to you by START Rescue

The tractor roll-over demo gives a chance to change the setting to something a little more informal than the traditional presentation/lecture, which often brings more questions/interaction from the audience. It will include a discussion on the most common type of farm accident involving machinery (the tractor roll over), how it happens, what might be needed from the farmers/owners, and what a rescue service might do to solve the problem, as well as discuss what can make this worse.



A 1951 Minneapolis Moline tractor will already be rolled over with a manikin under the rear tire (simulating the operator). The instructors will stabilize the tractor, then lift it off of the manikin using rescue tools such as jacks or air bags. Once clear, the victim will be slid out from under the tractor on a backboard.

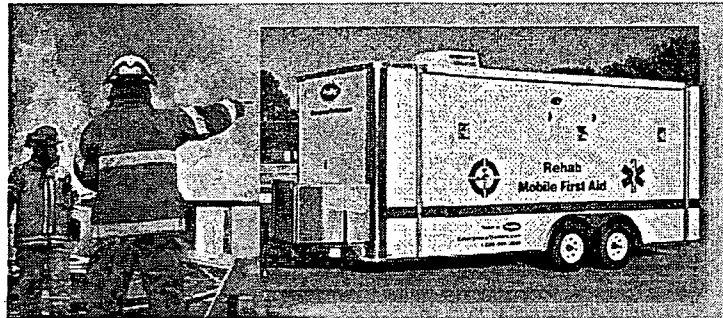
These exhibits are brought to you in part under a Grant awarded by the Michigan Occupational Safety and Health Administration (MIOSHA). MIOSHA is part of the Michigan Department of Licensing and Regulatory Affairs (LARA). Points of view or opinions stated in this document or at the exhibits do not necessarily reflect the view or policies of LARA.

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FEATURE**

VISIT THESE SIMULATORS IN THE EXHIBIT HALL



Firefighter's Rehab Trailers



Fire Rehab-Crucial

Fire Rehab—Crucial Rehab is crucial during a major incident. All the sweating responders do can lead to a health crisis. Firefighters should break for rehab after about 30 minutes.

ProPac Rehab Trailers-Essential

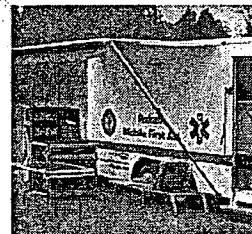
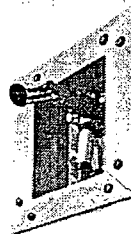
A well-equipped trailer at the scene provides timely and effective rehab for firefighters. ProPac configures and delivers trailers fully customized to meet your requirements. Please call for a quote: 1-800-345-3036.

ProPac Trailers—Experience

ProPac has produced hundreds of trailer packages since 1989, 12 to 22 ft. in length. From selecting the right trailer to a tow vehicle match, to loading the right products, TeamProPac puts it all together.

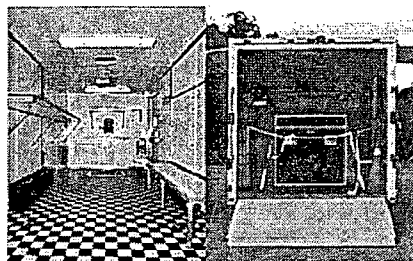
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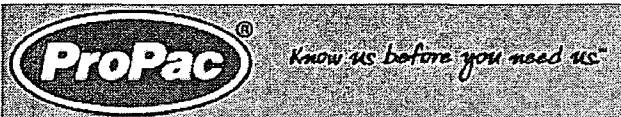


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 We have been responding quickly to your needs for more than 20 years. ProPac keeps you ready.

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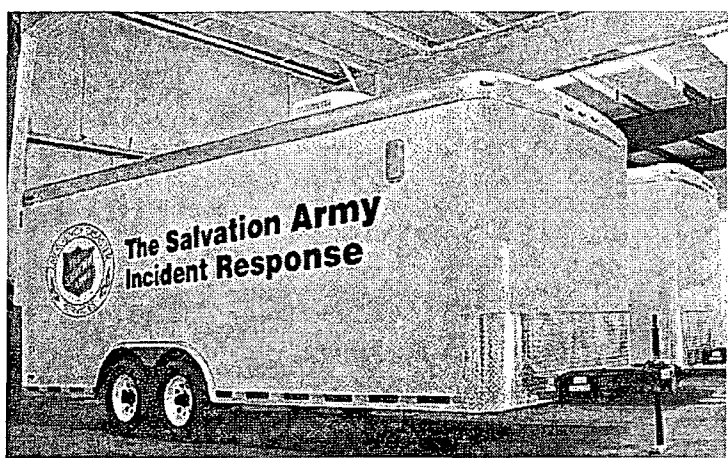
Disaster Response Trailers



ProPac custom fitted disaster recovery trailers are ready to roll. We have produced hundreds of trailers to our customers across the country. We assess your needs and provide the best trailer package available.

Wide range of applications and many are DHS grant eligible

- Responder and victim support
- Shelter supply storage
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Fire Training Simulators



Firefighter Training Simulators and Fire Training Simulation

Fire Training Simulators are designed to create realistic fire and emergency incident scenes without the use or dangers of fire. Most fire training simulators are equipped with LED lights for visual fire effects and built in sound recorders and players for sound effects. Flame and Smoke Generators are also used alongside firefighter training simulators to create the most realistic training environment.



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HAAGEN

The FS-Box is a professional-grade simulator, allowing you to create realistic fire and emergency incident scenes anywhere at anytime. The FS-Box is e...



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The Crackling Box is a light-weight and easy-to-use simulator to create a virtual fire scene. A flashing halogen light simulates the light effects of ...



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The **Fire Product Search** website is an ever growing international community of fire chiefs, professional fire fighters, fire training officers and trade specialists covering the field of fire fighting and rescue.

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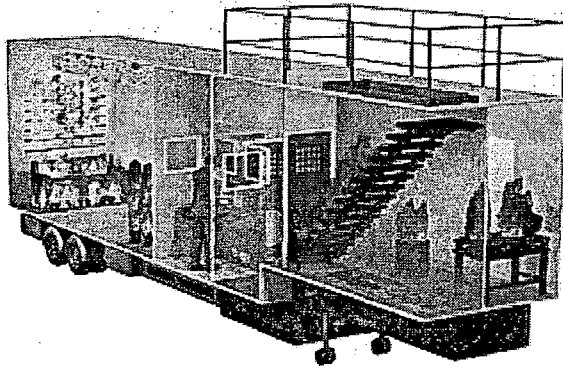
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> TRAINING GALLERIES AND WORKSHOP SYSTEMS > FIRE TRAINING SYSTEMS

Product benefits



Realistic fire simulation

The fire fighters are confronted with real flames, heat, high humidity, severely restricted visibility smoke during their training. This allows them to emergency as realistically as possible.

Pictures (5)

360 ° (0)

Movies (1)

Interactive (0)

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Mobility

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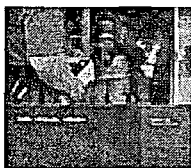
Operation with gas cylinders

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