A modular shoot house facility is formed by building a modular shoot house and a modular enclosure around the modular shoot house for protecting the modular shoot house from the wind.
FIG. 2
FIG. 3
The present invention relates to modular ballistic walls for decelerating projectiles, commonly referred to as a shoot house, and to an enclosure for the same. More specifically, the present invention relates to modular shoot houses and a modular structure designed to protect the shoot house from gusts of wind to thereby make the shoot house more modular while ensuring stability.

In order to maintain proficiency in the use of firearms, it is common for law enforcement officers and sportsmen to engage in target practice. While target practice has traditionally been conducted on a range in which targets were placed a distance away from the shooter, many have realized that such a scenario does not adequately train officers for many real life situations. For example, a substantial percentage of the police officers who are killed each year are killed within fifteen feet of the perpetrator. Many are killed within five feet—often within the confines of a house or other building.

In order to better train police officers, many individuals began building ballistic walls in arrangements to resemble a house or other building. These structures, typically referred to as shoot houses, enabled police officers to train in situations in which the officer faces realistic threats to their safety. Additionally, as the type of combat to which military troops may be exposed increasingly involves urban warfare, it is critical that military troops also be trained in house to house combat. Shoot houses were originally constructed out of concrete, gravel filled walls, or tire walls. While these shoot houses provided a marked improvement over traditional training, they are not as realistic and often do not resemble conventional looking walls.

A significant improvement in shoot houses was achieved with the invention of modular shoot house walls in which plates of steel were attached together in a ballistically sound manner by facing and backing strips and then covered by a frame. The frame typically had two-by-fours attached to the facing strips that held the plates together, and pieces of plywood that extend between the two-by-fours. A more detailed description of one preferred construction of a shoot house is set forth in U.S. Pat. No. 5,822,936.

When the plywood was painted, the shoot house looked very similar to a conventional home with the roof removed. In such a shoot house, an officer is able to train in a ballistically safe environment that closely resembles what may be the most dangerous scenario that he will face.

One problem which is present in modular shoot houses is structural rigidity. While the panels of a shoot house are wood and steel, they can act like a sail in response to strong wind gusts. If a portion of a shoot house collapses due to a wind storm, the risk of serious injury to anyone inside is significant.

To alleviate these concerns, it is common to extensively cross-brace the different panels. The cross-bracing is highly advantageous from the point of structural integrity and virtually insures that the wall panels will not fall in even the severest of storms. The use of the cross-braces, however, also has the corresponding disadvantage of making the shoot house less modular and mobile. Specifically, the more that cross-bracing is used to provide structural support, the less mobile the shoot house is, as the cross-bracing must be removed in order to take apart and move the panels.

Thus, there is needed an improved system and method for protecting a modular shoot house, while maintaining portability of the system.

It is an object of the present invention to provide an improved modular shoot house facility.

It is another object of the invention to provide such a modular shoot house facility which provides improved protection from the elements.

In accordance with the above and other objects of the invention a modular ballistic shoot house facility is disclosed which includes a plurality of metal plates which are connected to form a shoot house, and a portable/modular external structure disposed so as to enclose the shoot house.

In accordance with one aspect of the invention, the external structure is a portable modular building, such as a teepee or tent which is engineered to withstand high winds.

In accordance with another aspect of the invention, the external structure is a modular building, such as a Quonset hut, which can be disassembled, moved with the steel plates and reassembled at a desired location.

In accordance with another aspect of the invention, the shoot house and the portable building are disposed directly on the ground, or on some temporary frame or foundation such as logs or railroad ties or metal pieces, rather than on a permanent foundation.

FIG. 1 shows an end view of a shoot house disposed in a tent in accordance with one aspect of the present invention;

FIG. 2 shows a perspective view of a teepee formed in accordance with the present invention;

FIG. 3 shows a shoot house and a cut-away view of a Quonset hut in accordance with one aspect of the present invention;

FIG. 4 shows a side view of the Quonset hut in FIG. 3 and anchors used to secure the hut in the ground.
DETAILED DESCRIPTION

[0025] Reference will now be made to the drawings in which the various elements of the present invention will be given numeral designations and in which the invention will be discussed so as to enable one skilled in the art to make and use the invention. It is to be understood that the following description is only exemplary of the principles of the present invention, and should not be viewed as narrowing the pending claims.

[0026] Referring to FIG. 1, there is shown a shoot house 100 disposed in a portable, modular enclosure in the form of a tent 104. The shoot house 100 is assembled in the manner disclosed in U.S. Pat. No. 5,822,936, or in any other appropriate configuration. Rather than extensive cross-bracing of the shoot house 100, the tent 104 is configured to withstand a significant wind storm, to thereby prevent the walls of the shoot house 100 from being collapsed by the wind. It will be appreciated that a variety of tent configurations can be used to provide aerodynamics. Additionally, a door 106 may be provided which may be opened to provide access to the shoot house 100 and which may be closed to isolate the shoot house 100 from the wind, rain, etc. Additionally, support cables 108 and anchors 112 can be used to ensure that the tent 104 will not collapse.

[0027] In addition to protecting the walls of the shoot house 100, the tent 104 also enables use of the shoot house in a variety of weather conditions. For example, such a configuration could be used in a desert environment, such as Kuwait, where sand storms can damage fire arms. By closing the tent 104, the shoot house can continue to be used without risk to the weapons or the soldier's training in the shoot house. Similarly, the tent 104 could permit the use of the shoot house 100 during rain or other weather conditions.

[0028] One big advantage of the construction shown in FIG. 1 is that a foundation is not necessary. The shoot house 100 can be built directly on the dirt, on a gravel bed, or on many other surfaces. When it is desirable to relocate the shoot house 100, the tent 104 is taken down, as is the shoot house 100, and the two are moved to the new location. In such a manner, the military and other mobile law enforcement are able to take their training facilities to wherever they are stationed with having to pour or otherwise form a new foundation each time. A temporary foundation such as logs, wood, metal plates, etc. which is easily moved and which helps support the weight of the shoot house may be used. Additionally, the shoot house 100 can be readily reconfigured to replicate an intended target. For example, if a special operations unit were about to make an assault on a building believed to house terrorists, the floor plan of the building could be replicated in the shoot house 100, to enable timing and other planning to be perfected.

[0029] Turning now to FIG. 2, there is shown a side view of a teepee 120 having the shoot house 100 disposed inside. The sloped walls 124 of the teepee 120 are more aerodynamic than the flat, straight walls of the shoot house 100 and therefore are less likely to give way due to high winds. The configuration enables military troops or law enforcement to train in the shoot house in a variety of weather conditions, while still allowing the shoot house and external structure to be moved to another location when desired.

[0030] Turning now to FIG. 3, there is shown a partial cut-away view of a modular shoot house facility, generally indicated at 128. The facility 128 includes a modular shoot house 100 and a Quonset hut 130. The Quonset hut 130 is made from a number of arcurate ribs 134 and sheets of tin or other metal 138 which are attached together to form a generally hemispherical structure. A door 142 is placed at one end to provided access. Braces or anchors 146 may be used to support the weight of the Quonset hut or otherwise stabilize the structure as may be necessary. The braces or anchors 146 may provide a temporary foundation, aiding in preventing movement of the shoot house. The anchors 146 may be railroad ties, wood, metal, even concrete footings if desired.

[0031] Quonset huts 130 have been common in the military since the start of World War II, as convenient storage facilities. Utilizing a Quonset hut 130 or other similar, modular structure has both the benefit of limiting the need for cross-bracing and the benefit of allowing the shoot house to be used in almost any environment. Quonset huts 130 are particularly advantageous in this context because they are easy to assemble and disassemble, relatively inexpensive, and have been demonstrated to handle hurricane force winds without collapsing. Thus, the risk that a windstorm could topple the Quonset hut 130 and the shoot house 100 is extremely small.

[0032] While attempts have been made to place awnings or other coverings above shoot houses to allow their use during rain, there has been no meaningful attempt to provide an enclosure structure which limits the need to cross-brace the shoot house to protect against windstorms, etc. Use of a Quonset hut 130 has all of these advantages, while also providing security against collapse of the shoot house independent of cross-bracing. The use of the Quonset hut 130 also provides increased security, thereby limiting access to the shoot house 100 to authorized personnel only.

[0033] Turning now to FIG. 4, there is shown a side view of the Quonset hut 130. While a Quonset hut 130 and a shoot house can be placed on a foundation, or a temporary foundation 154 such as railroad ties, the present invention is advantageous because a foundation is not required. The shoot house 100 and the Quonset hut can be placed on dirt, gravel, or on a make-shift foundation, such as railroad ties, wood, metal plates, as is desired. To prevent the Quonset hut 130 from being blown away, a plurality of anchors 150 can be used to secure the Quonset hut to the ground. The anchors 150 may be elongate stakes, may be corkscrew shaped, etc. The anchors 150 may then be removed or cut and the Quonset hut 130 and shoot house 100 disassembled if the shoot house facility 128 is needed in another location.

[0034] Thus there is disclosed an improved modular shoot house facility. Those skilled in the art will appreciate numerous modifications which can be made without departing from the scope and spirit of the present invention. The appended claims are intended to cover such modifications.

What is claimed is:

1. A modular shoot house facility comprising:
   a modular shoot house configured for stopping bullets; and
   a modular enclosure disposed around the shoot house so as to protect the shoot house from wind gusts.
2. The modular shoot house facility according to claim 1, wherein the modular shoot house is formed from a plurality of steel panels attached to one another.

3. The modular shoot house facility according to claim 1, wherein the modular enclosure comprises a tent.

4. The modular shoot house facility according to claim 1, wherein the modular enclosure has a plurality of anchors attached thereto for holding the modular enclosure to the ground.

5. The modular shoot house facility according to claim 1, wherein the modular enclosure comprises a teepee.

6. The modular shoot house facility according to claim 1, wherein the modular enclosure comprises a plurality of pieces of metal attached to one another so as to form an enclosure.

7. The modular shoot house facility according to claim 6, wherein the modular enclosure is generally arcuate.

8. The modular shoot house facility according to claim 1, wherein the modular enclosure comprises a Quonset hut.

9. A method for forming a shoot house facility comprising:

   forming a modular enclosure by attaching a plurality of pieces of material together so that the plurality of pieces can be repeatedly assembled and disassembled; and

   forming a modular shoot house inside of the modular enclosure such that the modular enclosure protects the modular shoot house from wind.

10. The method according to claim 9, wherein the method comprises forming the modular enclosure by erecting a teepee.

11. The method according to claim 9, wherein the method comprises forming the modular enclosure by erecting a teepee.

12. The method according to claim 9, wherein the method comprises forming a Quonset hut.

13. The method according to claim 9, wherein the method further comprises attaching the modular enclosure to the ground by an anchor.

14. The method according to claim 9, wherein the method further comprises forming a modular enclosure which withstands high wind.

15. A shoot house comprising:

   a plurality of bullet proof walls disposed so as to form at least one room for ballistics training, the plurality of walls being configured for repeated assembly and disassembly so as to form a portable shoot house; and

   a covering structure, the covering structure being built independent of the bullet proof walls such that the bullet proof walls do not form a part of the walls or ceiling of the covering structure, the covering structure being configured for assembly and disassembly so as to be portable and being formed so as to withstand high winds.

16. The shoot house of claim 15, wherein the plurality of bullet proof walls are formed from plate steel.

17. The shoot house of claim 15, wherein the covering structure is selected from the group consisting of a tent, a teepee, and a Quonset hut.

18. The shoot house of claim 15, wherein the shoot house lacks a permanent foundation.

19. The shoot house of claim 15, wherein the shoot house further comprises a temporary foundation.

20. The shoot house of claim 15, wherein the shoot house further comprises a plurality of anchors configured for attaching the shoot house to the ground.

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