

THE DETONATOR™

The Official Publication of the International Association of Bomb Technicians and Investigators

**Bomb Resistant
Waste Receptacles
Tested at EMRTC**



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In this issue...

Bomb resistant Waste Receptacles
Tested at EMRTC - Page 31
Are you at Risk for Hyponatremia? - Page 34
Inside Post Blast School - Page 36
A Type That Could Cost You Millions - Page 39
News You May Not Have Heard - Page 42
Training Gastonia Style - Page 44
Fitness Q&A - Page 44
Serial Bomb Threats: Offender Profiles in
Southeast Alabama - Page 46

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Mitigating the Effects of Terrorist Attacks

by
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Even the best physical security plans, bomb incident plans and awareness training programs cannot protect a facility from an extremist or terrorist planting an explosive device inside a public mailbox or trash receptacle. Many public mailboxes are either being removed completely or being strategically placed at safe distances away from areas where large groups of people pass or gather. Trash receptacles cannot be as easily removed or strategically located because of their waste management function, which is why they are recognized as one of the easiest places for a terrorist to conceal a bomb in a public or private facility.

A necessity for waste management, trash receptacles pose a serious threat to Public Safety and Infrastructure Security. The trash receptacle becomes part of the attack and maximizes the intensity of the explosion by spraying shrapnel and fragmentation at great distances. A terrorist attack utilizing ordinary trash receptacles and remote activated or time delayed explosive devices can be easily coordinated to strike multiple places simultaneously or in stages, without exposing the terrorist.

The Energetic Materials Research and Testing Center (EMRTC) in Socorro, NM, well known for providing test services for the development of many weapons systems and other ordnance items, tested new designs of Bomb Resistant Waste Receptacles in January, March and April 2003. These waste receptacles are intended to look and function like ordinary waste receptacles seen in airports and other public places. However, unlike conventional trash receptacles, these are designed to protect people from the harmful effects of an explosion resulting from an explosive device hidden inside the waste receptacle.

Since it cannot be controlled where within a trash receptacle an explosive device will be placed, bottom center, side wall, and midpoint center detonation tests should be conducted to determine the actual amount of explosives the bomb receptacle can withstand from an explosion. This amount of explosives is referred to as the explosive containment rating. EMRTC conducted tests that would provide both nominal and the most severe tests of the container's capabilities.

Agencies and facilities that are considering deploying bomb resistant trash receptacles to reduce their vulnerability to this type of an attack must exercise good judgment when purchasing and installing this technology. In order to regain and maintain an edge over the terrorist, the amount of explosives their bomb receptacles are able to withstand during an explosion should not be publicized. Doing so will enable the terrorist to possibly defeat the technology by simply placing a larger size bomb inside the receptacle. The locations of their newly purchased antiterrorism technology should not be disclosed either, because doing so will most likely result in the terrorist planting their bomb inside something without any force protection.

In addition to protecting the explosive containment ratings and not disclosing the installation locations for bomb receptacles, it is equally important for all customers to know what they are purchasing. Understanding how a bomb receptacle was tested to ensure its reliability during an actual terrorist attack is vital. Therefore, during testing, it is essential to anchor all bomb receptacles to a steel and concrete slab in order to create a real life deployment scenario. Tests conducted on a dirt surface are misleading because the majority of the blast energy is absorbed by the ground instead of the receptacle which will be doing all of the work during an actual attack.

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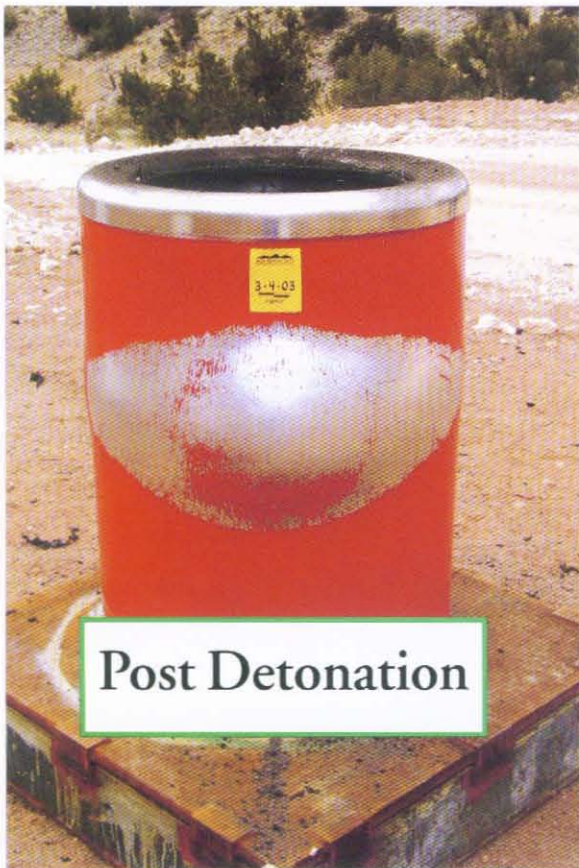
Before purchasing any bomb resistant waste receptacle, it is important to obtain an official test report that confirms how the product was tested ensuring an accurate explosives containment rating was obtained. The report should come from a recognized testing facility and must include the type of explosives used, how the explosives were packed, and what the explosives were packed inside of to ensure an equal explosives charge was used for every test. Be certain the test report incorporates close up post detonation photos and is accompanied by the actual video footage taken during the testing.

Before analyzing an official test report and watching the supporting video, it is very important to understand what determines a successful test. Once the testing guidelines are established by an independent testing facility to determine what constitutes a successful test, the results are obvious. The bomb receptacle must remain standing after the explosion, the stainless steel top must remain attached to the receptacle, and there can be no penetration to the outer wall of the receptacle.

In addition to tests using C4 or TNT to measure blast energy containment, fragmentation containment tests should also be conducted with pipe bombs.

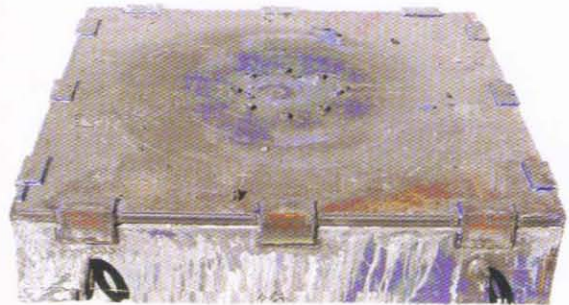
During an explosion in a bomb resistant trash receptacle, the initial blast energy and fragmentation is contained horizontally and the remaining blast energy is directed vertically. For this reason, the garbage liner that holds the trash bags in place should be made of a plastic material as opposed to metal because parts of the liner will become airborne during an explosion.

The cover of this issue features a side wall explosion using C4 explosives and below is a close up post detonation photo of the same. These photos were taken at EMRTC during the actual test. If you look closely at the post detonation photo, you will notice that the receptacle was anchored to a steel and concrete slab during the tests and that the receptacle remained standing after the explosion. You will also notice that the stainless steel top ring remained attached and that the outer wall of the bomb receptacle bulged but was not penetrated by the explosion. Given all the testing parameters, this was clearly a successful test.



Bomb receptacles that can pass a legitimate series of explosive tests and follow all the required parameters for obtaining an accurate explosive containment rating will most likely weigh over 1000 lbs each, depending on the amount of explosives they were developed to withstand. During an actual terrorist attack, a bomb receptacle could tip, roll and gain a tremendous amount of momentum, endangering anybody in their path. For this reason and given the weight of each receptacle, it is recommended that all bomb receptacles be anchored when they are installed.

The bomb receptacle integrates a single point stainless steel anchoring system that will withstand four thousand pounds of shear (horizontal) and tension (vertical) force. The nice thing about a single point anchoring system is the limited amount of time it will take to install each receptacle, a very important detail when calculating the actual cost per unit.



Anchoring Slab

The main purpose of a bomb resistant trash receptacle is to look and function like an ordinary waste receptacle. However, unlike the conventional trash receptacles seen today in airports, universities, malls and other public places, these are developed to protect people from the harmful effects of an explosion. Unfortunately, there are currently no official standards for manufacturers when developing bomb resistant waste receptacles. There are also no restrictions placed on buyers when purchasing this technology. This makes it important to ask the right questions and exercise good judgment when purchasing and deploying a technology of this nature.

For more information, or to watch the product testing videos from EMRTC visit: www.BombReceptacles.com or contact Grant Haber at 845-371-3333 ext. 901. ☎

Before Purchasing a Bomb Resistant Waste Receptacle:

1. Request the highest rated receptacle available to get the maximum force protection.
2. Require an official test report that includes size, shape, density and type of explosives used for every test.
3. Tests should include bottom center, side wall weld seam, side wall opposite weld seam and midpoint center detonations.
4. Require that the test report include post detonation photos that show the anchoring slab used during testing.
5. Require a copy of the supporting product testing video to compare against the test report for discrepancies.
6. Make certain that the specifications to defeat the receptacle has not been publicized.