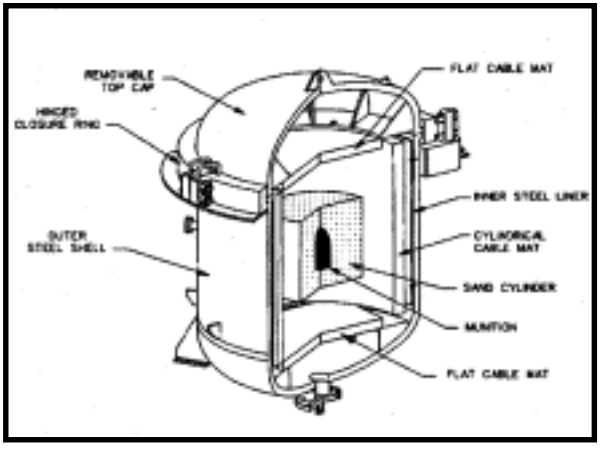
2.1.2.2 Blast Containment Structure

The Army Corps of Engineers, Engineering and Support Center in Huntsville, Alabama has developed a blast containment structure which is designed to capture all significant blast pressures for a total NEW of up to six pounds of TNT. The unit is also designed to capture all fragments from cased munitions including 57-mm and 75-mm recoilless rifle shells, 75-mm howitzer and 60-mm and 81-mm mortars. The container consists of a steel cylinder, six feet tall and three and one-half feet in diameter, with elliptical top and bottom caps. The top cap is removable and is held in place by a hinged steel ring. The bottom cap is permanently welded to the cylinder but it features a four-inch diameter drain port for cleanout and several one-inch diameter vent holes. The entire container is mounted on a steel framed skid. The skid includes a working platform, made of fiberglass grating, and a hoist for removing the top cap. All steel parts are cabled together in an electrically continuous fashion and are grounded.

Interior view of the floor of a Donovan Blast Chamber.

The container utilizes a multi-layer fragment capture system to capture debris. Ordnance and a booster charge are placed in a sand-filled plastic cylinder. Just outside the sand layer, plastic bags filled with water are used to absorb much of the heat of the explosion and to reduce the blast pressures. Outside the sand layer is a steel cable mat shaped in the form of the cylinder, with a top and bottom mat to protect the end caps. The mat is similiar to blasting mats used at construction sites. A steel plate liner is located between the cable mat and the outer steel shell. The liner is made in easily removable segments. The sand and water are replaced after each detonation. The cable mats are expected to last for up to ten detonations before being replaced. The liner plate may survive as many



Schematic of Blast Containment Chamber.

as 50 to 75 detonations before requiring replacement. Additional information regarding this treatment device is available at http://www.hnd.usace.army.mil/oew/tech/techindx.html