

**Appendix D**  
**MPM Forms**



## Minimum Separation Distances

Ft. Ord

~~75mm M48~~

21 April 2000

REQUESTED BY: *A.R. SMITH*  
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**This form shows calculated distances only. It does not constitute approval. Concurrence of CEHNC-OE-S is required to determine the applicable distance for a specific site.**

In accordance with (IAW) OE Center of Expertise Interim Guidance Document 98-08, use of the range to no more than 1 hazardous fragment/600 sq ft as the minimum separation distance for accidental detonations requires written justification, a risk analysis, calculation of this distance by CEHNC-ED-CS-S, and concurrence of CEHNC-OE-S.

### CALCULATIONS FOR UNINTENTIONAL DETONATIONS

Maximum Fragment Range = 1701 ft  
Range to No More Than 1 Hazardous Fragment/600 sq ft = 234 ft  
Range to 0.9 psi Overpressure = 60 ft

IAW OE Center of Expertise Interim Guidance Document 98-08, the minimum separation distance for intentional detonations may not be less than the default distance provided in DoD 6055.9-STD or the maximum fragment range or the K328 overpressure distance.

### CALCULATIONS FOR INTENTIONAL DETONATIONS

Maximum Fragment Range = 1701 ft  
K328 Overpressure Range = 396 ft

The primary fragmentation characteristics used in the calculation of the values listed above were computed IAW CEHNC-ED-CS-S-98-1. The maximum fragment range was calculated using the maximum weight fragment and the initial velocity from these characteristics in the computer software TRAJ. The range to no more than 1 hazardous fragment/600 sq ft was calculated IAW CEHNC-ED-CS-S-98-2.

### SANDBAG ENCLOSURE FOR INTENTIONAL DETONATIONS

Required Sandbag Thickness = 24 in. with 6" standoff between munition and sandbags  
Sandbag Throw Distance = 125 ft  
Minimum Separation Distance = 200 ft

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The required sandbag thickness and the sandbag throw distance were calculated IAW CEHNC-ED-CS-S-98-7. The minimum separation distance is based on the largest of the sandbag throw distance or 200 ft or the K328 distance for the total NEW (munition plus donor charge). A copy of HNC-ED-CS-S-98-7, "Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions" must be available on site. This report may be downloaded from the USAESCH homepage at <http://www.hnd.usace.army.mil>. Select "Product Lines", "Ordnance and Explosives", "Innovative Technology", then "Analytical Tools". The first time you access the site you will have to register. You will be notified by e-mail when your login and password have been activated. You must have a login and password to download the report.

**MINIMUM SEPARATION DISTANCES WHILE USING MOFB DURING INTRUSIVE ACTIVITIES**

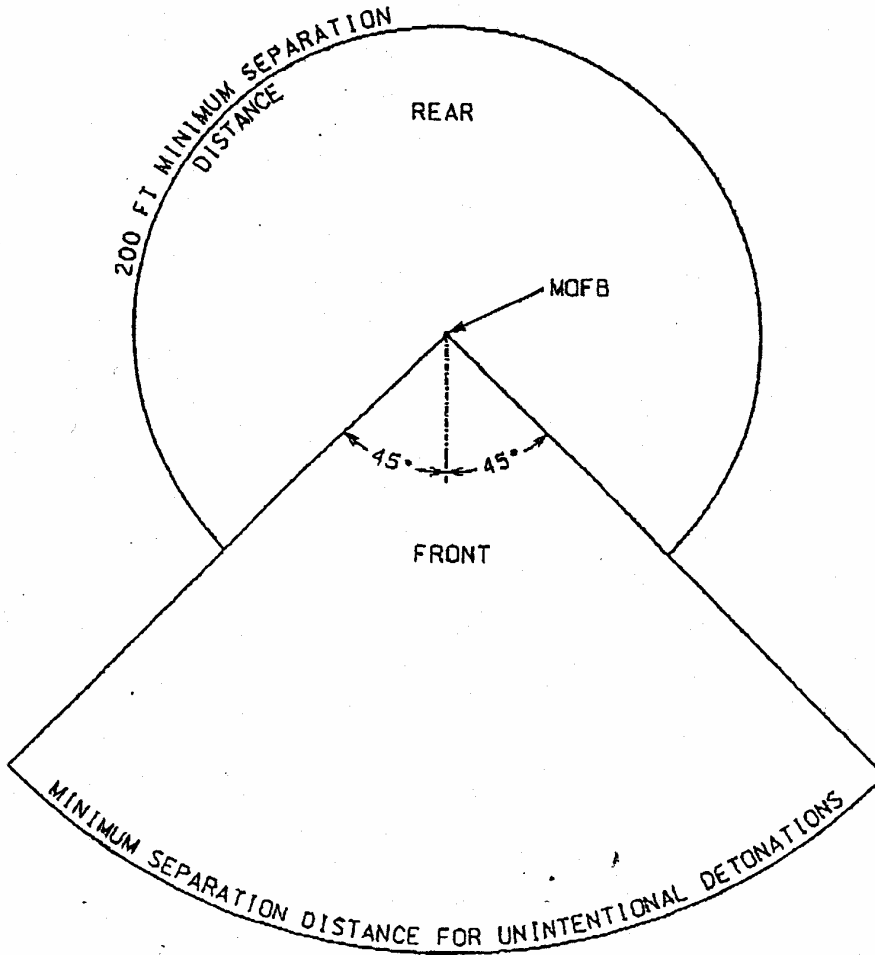
Design of the Miniature Open Front Barricade (MOFB) is in accordance with HNC-ED-CS-S-98-8, "Miniature Open Front Barricade". This document was approved by the DDESB. It may be found on HNC's website at [www.hnd.usace.army.mil](http://www.hnd.usace.army.mil) and select "Product Lines", "Ordnance & Explosives", "Innovative Technology", and "Analytical Tools". DDESB has placed certain restrictions on the approved usage of the MOFB. These are listed in the approval letter in the front of the report.

Thickness of Aluminum Required to Prevent Perforation = 1.45 in

The MOFB is designed to defeat fragments to the rear and sides of the MOFB in the case of an accidental/unintentional detonation during intrusive activities. The fragment distances to the front of the MOFB are the same as the fragment distances without the MOFB (see figure). The MOFB is not designed to reduce the effects of blast overpressure. The MOFB may not be used for intentional detonations. The minimum separation distances to the rear and sides of the MOFB must be maintained based on the expected throw distance of the MOFB itself.

Minimum Separation Distance to sides and rear = 200 ft  
Minimum Separation Distance to front = 1701 ft  
K50 distance = 60 ft

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MINIMUM SEPARATION DISTANCE FOR UNINTENTIONAL DETONATIONS  
USING MINIATURE OPEN FRONT BARRICADE DURING INTRUSIVE ACTIVITIES

SIGNATURES:

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