



DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD

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24 MAR 2025

DDESB-PE

MEMORANDUM FOR HEADQUARTERS AIR FORCE SAFETY CENTER (ATTENTION: SEWC)

SUBJECT: Approval of Reduced Quantity-Distance (QD) for the Air National Guard
Maintenance & Inspection Facility Standard Design

References: (a) HQ AFSEC/SEWC Memorandum of 13 March 2025, Subject: Final Approval
of Air National Guard Maintenance and Inspection Facility Standard Design.

(b) U.S. Army Corps of Engineers, Engineering & Support Center Huntsville, Air
National Guard Maintenance and Inspection Facility Standard Design, Final
Design Submittal, Design Drawings and Design Narrative, 23 October 2024

(c) Defense Explosives Safety Regulation 6055.09, Edition 1, Change 1, 23
February 2024

(d) DDESB Technical Paper 15, "Approved Protective Construction," Revision 4,
26 July 2020

As requested by reference (a), we have reviewed the reference (b) design drawings and narrative for compliance with Department of Defense explosives safety criteria found in reference (c). Based on our evaluation, the standard design documented in reference (b) is approved for reduced QD when sited as a potential explosion site (PES). The following apply to this approval:

a. The approved hazard divisions (HD) and net explosive weights for quantity-distance (NEWQD) in pounds (lb) are provided in the following table. The facility design includes two operating bays, so limits listed in the table apply to each bay.

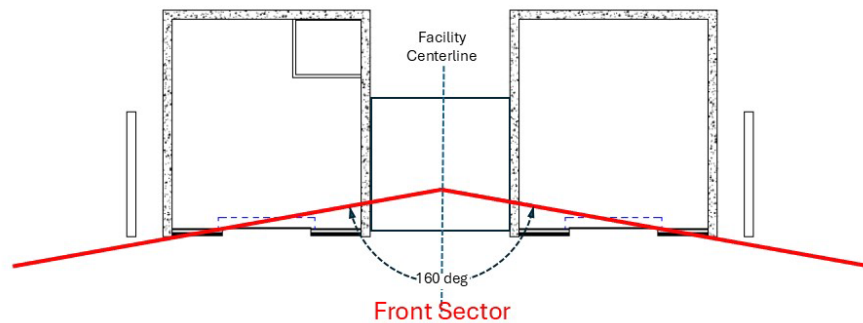
PES/ Description	HD 1.1	HD 1.2.1	HD 1.2.2	HD 1.2.3	HD 1.3	HD 1.4
Maintenance & Inspection Facility	150	1,000 MCE \leq 79	1,000	(08) 1,000 MCE \leq 450	5,000	MEQ

MCE: Maximum Credible Event, MEQ: Mission-Essential Quantities

b. The following conditions apply to the reduced inhabited building distances (IBDs) for the reference (b) standard design.

(1) The front side of the facility is defined as the 80-degree sector on either side of the facility's centerline (160-degree combined angle, see graphic below), with the vertex of the angle placed so that the sides of the angle pass through the intersection of the front

wall and side walls. This angle is based on lines of sight from worst-case explosives locations in the bays with 5-feet (ft) minimum standoff to the front wall.



(2) The standard design includes an optional 40-ft-tall barricade at the front side of the facility (see sheet S-103 for barricade construction requirements). If this barricade is included, the IBD in the front direction varies as a function of minimum required standoff of explosives from the front wall, as summarized in the table below. These distances are only valid for munitions with a calculated hazardous fragment distance (HFD) less than or equal to 508-ft. It is the responsibility of the activity to verify the HFD for any munitions not listed in Table 4-6 of the reference (b) basis of design report.

Minimum Front Wall Standoff (ft)	Front IBD (ft)
5	379
10	355
20	304

(3) If the optional barricade is not constructed, then no reduced QD applies in the front direction.

(4) To the sides and rear of the facility (i.e., all directions outside of the front sector), a reduced IBD of 213-ft applies.

(5) Public traffic route distance (PTRD) will be computed as 60 percent of the applicable IBD in each direction.

c. Maintenance and Inspection facilities must be constructed in accordance with the standard design drawings of reference (b). Site-adapted designs may incorporate a modified building foundation designed for local site conditions, but no other modifications are permitted without reassessment of the reduced IBD.

d. Intraline and intermagazine distances must be computed per the requirements of reference (c) but need not exceed the PTRD calculated per paragraph b.(5).

e. A minimum standoff distance of 5-ft from explosives to the interior face of the side and rear walls must be enforced through standard operating procedures. A minimum

standoff of 5-ft is also required to the front wall, with additional distance enforced for the barricaded configuration, as summarized in paragraph b.(2).

f. Fragmentation effects have been considered for the common list of munitions shown in Table 4-6 of the reference (b) basis of design report. For any munitions not included on this list, it is the responsibility of the activity to verify that the 20-inch-thick reinforced concrete walls and roof will defeat the design fragment with no spall. The methods of DDESB Technical Paper 16 should be used in this determination.

g. Concurrent, related operations are permitted in the two operating bays.

h. The reference (b) design includes an integral lightning protection system with bonding and grounding. Any modifications to these systems must be submitted with the site-adapted design in the facility's site plan submission.

This approval of the reference (b) standard design will be documented in the next revision of reference (d).

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