



DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD
2461 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22331-0600

JUL 15 2013

DDESB-PD

MEMORANDUM FOR DIRECTOR OF ENGINEERING, HUNTSVILLE CENTER, U.S.
ARMY CORPS OF ENGINEERS, ATTENTION: CEHNC-ED

SUBJECT: DDESB Approval of Modular Storage Magazine (MSM), U.S. Army Corps of
Engineers Standard Drawing Series 421-80-08

- References:
- (a) CEHNC-ED Memorandum of 24 June 2013, Subject: New Modular Storage Magazine (MSM) Series 421-80-08, with enclosures
 - (b) U.S. Army Corps of Engineers, Huntsville Center Drawings, Modular Storage Magazine, Box-Type STD 421-80-08 with 14'-8" Door, dated June 2013 (26 Sheets)
 - (c) DoD 6055.09-M, Department of Defense Ammunition and Explosives Safety Standards, 29 February 2008, administratively reissued 4 August 2010, with changes through 12 March 2012
 - (d) Department of the Air Force, Ogden Air Logistics Center, Office of Civil Engineering, Ogden, Utah, Munitions Storage Module, Buildings 2580 and 2581, Hill Air Force Base, Utah, Project No. KRSM 020070/020071 Drawings dated May 2002 (27 Sheets)
 - (e) DDESB-KO Memorandum of 11 July 2002, Subject: Expeditious Explosives Safety Site Plan Requests, Construct Two Modified Earthcovered Magazines, Buildings 2580 and 2581, AFMC-Hill 02-S33 and S34 (Hill AFB, UT)
 - (f) DDESB TP 15, Approved Protective Construction, Revision 3, May 2010

As requested by reference (a), we have reviewed the reference (b) drawings for compliance with Department of Defense explosives safety criteria found in reference (c). The attachment to reference (a) describes the modifications that have been incorporated into those drawings.

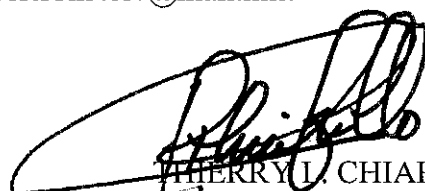
Based on our evaluation, reference (b) is approved as a 7-Bar earth-covered magazine (ECM). This new design supersedes the previous reference (d) Munitions Storage Module ("14-ft MSM") design.

The maximum allowable Hazard Division (HD) 1.1 explosive limit for the reference (b) design is 500,000 pounds net explosive weight (NEW). It is noted that while the approval memorandum of reference (e) set the HD 1.1 explosive limit of Buildings (Munitions Storage Modules) 2580 and 2581 to 150,000 pounds (lbs) NEW, this was based on site-specific quantity-distance (QD) constraints and was not intended as a general/standard magazine approval. The supporting analysis provided to substantiate the approval memorandum of reference (e) was based on loads from a donor ECM containing 500,000 lbs HD 1.1 NEW. The specific siting constraints of a project involving ECM construction will dictate the actual NEW limits.

The new drawing series corrects omissions, updates the design to meet current Architectural, Engineering and Construction Computer Aided Design standards and improves overall constructability of this economical design that has been used extensively by the Services. Lessons learned from previous construction efforts have been incorporated in the new design, a conventional load analysis was completed to assist designers during the site adaptation process, and special inspection requirements were added to improve quality verification of explosives safety related construction elements.

Reference (b) will be added to Table AP 1-1 of reference (f), as approved for new construction, and reference (d) will be relocated from Table AP 1-1 to Table AP 1-2 of reference (f), and considered not being approved for new construction. However, any explosives safety site plans that use the reference (d) design and, as of the date of this memorandum, are currently within the review/approval process will continue to be processed by the DDESB.

The point of contact for this action is Mr. William L. Robertson, (571) 372-6776, DSN 372-6776, E-mail address: william.l.robertson3.civ@mail.mil.



THERRY L. CHIAPELLO
Executive Director
DDESB

cc:
USATCES
AFSC/SEW
NOSSA/N511
MARCORSYSCOM/AM-EES
NAVFAC EXWC/CI7



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HUNTSVILLE CENTER, CORPS OF ENGINEERS
P.O. BOX 1600
HUNTSVILLE, ALABAMA 35807-4301

CEHNC-ED

24 June 2013

MEMORANDUM FOR Department of Defense Explosives Safety Board, Policy Development Division (Ms. Lea Ann Cotton) 4800 Mark Center Drive, Suite 16E12, Alexandria, VA 22350

SUBJECT: New Modular Storage Magazine (MSM) Series 421-80-08

1. We have completed the new subject drawing series. The new series updates the drawings to meet current Architectural, Engineering and Construction Computer Aided Design standards, improved plan readability, constructability, and correct omissions within the construction drawings. Another key element performed during the revision was the incorporation of lessons learned from previous MSM projects at various User organizations. In addition, a conventional structural load analysis was performed to identify some key loading limits, which will assist the designer during the site-adaption process. Many upgrades were made to the drawing package to improve the drawings in an effort to enhance construction of all new magazines. We recommend the 421-80-08 be considered a 7-bar structural designation, based on the justifications utilized to determine its' predecessor's, MSM at Hill AFB, 7-bar structural designation.
2. We will provide electronic versions of the narrative and drawings by way of email. The drawings will be in Bentley MicroStation, Autodesk AutoCAD and Portable Document Format file formats.
3. We appreciate the opportunity to support you on this effort. Our point of contact for this action is Mr. Josh Umphrey at commercial 256-895-1652 or DSN 760-1652. We look forward to providing explosive effects consultation and support to you in the near future.

Encl

A handwritten signature in black ink, appearing to read "Boyce L. Ross".

BOYCE L. ROSS, P.E.
Director of Engineering

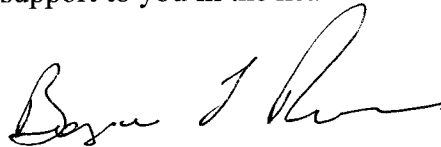
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BOYCE L. ROSS, P.E.
Director of Engineering

Encl

CEHNC-ED

SUBJECT: New Modular Storage Magazine (MSM) Series 421-80-08

CF:

ED Read File

EDC- Read File

EDC-S Read File

EDC-S (Coulston, Umphrey)

	Initial	Date
EDC-S, Coulston	<u>JWC</u>	<u>24 Jun 13</u>
EDC, Murdock	<u>km</u>	<u>6/27/13</u>

APPENDIX A

STATEMENT OF TECHNICAL REVIEW

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The Huntsville Center has completed the new Modular Storage Magazine 421-80-08. Notice has hereby given that an independent technical review, which is appropriate to the level of risk and complexity inherent in the project, has been conducted. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This verification included review of assumptions; methods, procedures, and materials used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with the law and existing Corps policy. The independent technical review was accomplished by a team established in accordance with EC 1110-105. All comments resulting from the independent technical review have been resolved and no outstanding issues remain.

Roy A. Wright
Technical Review Team Leader

24 Jun 13
Date

Jeff Coult
Technical Manager

24 Jun 13
Date

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

There were no significant concerns encountered during the independent technical review.

As noted above, all concerns resulting from the independent technical review of the project have been fully resolved.

Ben J. [Signature]
Director of Engineering

6/24/13
Date