



**US Army Corps
of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2010-12

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Subject: Intelligibility of Mass Notification Systems (MNS) in Cavernous Areas.

Applicability: Criteria Revision

1. This bulletin provides a revision to [UFC 4-021-01](#), Mass Notification System, 9 April 2008. This revision has been approved by the tri-service MNS Working Group and will be issued as part of Change 1 to the UFC.

2. Occasionally, large DoD buildings are designed to include cavernous-type open areas to meet unique operational requirements. Such areas are typically designed with hard wall and ceiling surfaces (such as metal or concrete) without acoustical treatments. The hard surfaces been found to cause excessive sound reflections that prevent obtaining the minimum common intelligibility scale (CIS) value required by UFC 4-021-01. In such facilities, the cavernous-type open area is permitted to have locations with a CIS value lower than the minimum CIS value required by UFC 4-021-01 when the following conditions are met:

a. The requirement for a deviation from the minimum CIS criteria is identified in the design phase.

b. Justification for the deviation from the normal, minimum CIS criteria is provided to the Contracting Officer. The justification will address all factors relevant to the request for deviation from minimum CIS criteria, including but not limited to: the operational requirements that restrict the installation of acoustical wall and ceiling treatments; the potential use of special speaker technologies such as directional speakers or stacked speaker systems; and the availability of physically larger or higher fidelity speakers even though such speakers might not be listed for fire alarm use.

c. Deviation from minimum CIS criteria should not be requested for the design of normal large open areas that are typically found in permanent DoD buildings, such as dining halls, theaters, and gymnasiums. The potential for deviation from criteria is intended to address the rare exception to normal criteria that is sometimes needed for DoD buildings with unique operational requirements.

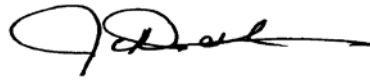
d. Building occupants located in the large cavernous area can adequately understand the message content in the voice signal being broadcast. Whether the voice message is adequately understood shall be determined by Contracting Officer.

e. The CIS value is not less than 0.6 at any location within the large cavernous area.

f. The building occupants in the large cavernous area must walk no more than 30 m (98 ft) to find another location within the large cavernous area having at least the minimum CIS value required by UFC 4-021-01.

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3. HQUSACE points of contact for this ECB is Lawrence Schulte, 605-341-3169, and Robert DiAngelo, 202-761-0373.

A handwritten signature in black ink, appearing to read 'J. Dalton', with a long horizontal flourish extending to the right.

JAMES C. DALTON, P.E.
Chief, Engineering and Construction
Directorate of Civil Works