



**US Army Corps  
of Engineers ®**

# EIRS Bulletin

Engineering Improvement Recommendation System

No. 98-03

Date: 4 September 1998

The Engineering Improvement Recommendation System Bulletin is part of our Information Feedback System and is used in military construction programs to expedite dissemination of information regarding problems. The probable solutions included in the EIRS BULLETIN have not been thoroughly explored or staffed. Accordingly, these probable solutions do not represent a final HQUSACE position, and their use is not mandatory. Probable solutions are considered as informational in nature for the purpose of permitting prompt consideration by the field. EIRS Bulletin recipients are encouraged to comment on the probable solutions presented so that other viewpoints can be considered in the development of the final HQUSACE position. Since changes to criteria approved by ENG Form 3078, Recommended Changes to Engineering Documents, are expected to remain firm, they are identified as final solutions and should be used in current design. To defray printing costs, local reproduction of this bulletin is authorized. This issue of the EIRS Bulletin contains 7 enclosures as follows:

ENCL 1: Removing Existing Halon 1301 Fixed Extinguishing Systems

ENCL 2: Civil Works Guide Specifications Converted to CEGS

ENCL 3: Year 2000 (Y2K) Computer Compliance

ENCL 4: Recommended Changes to Engineering Documents

ENCL 5: Guide Specification Section CEGS-01415, METRIC MEASUREMENTS

ENCL 6: ENG Form 3078 Follow-up Actions

ENCL 7: Recently Issued Criteria

FOR THE COMMANDER:

7 Encls

**DWIGHT A. BERANEK, P.E.**  
Chief, Engineering and Construction Division  
Directorate of Military Programs

## ENGINEERING AND DESIGN

### Removing Existing Halon 1301 Fixed Extinguishing Systems:

a. Problem: On February 16, 1996, the Assistant Secretary of the Army for Installations, Logistics, and the Environment (ASA (IL&E)) signed a policy memo on "Ozone-Depleting Chemical (ODC) Elimination at Army Installations." This memo establishes the requirement that Class I ODCs be eliminated from Army facilities by the end of fiscal year 2003. Consequently many installations are faced with requirement to remove Halon 1301, a Class I ODC, and replace it with adequate fire protection. This bulletin provides guidance for replacing the existing total flooding Halon 1301 systems.

b. Probable Solution: The basic criteria for fire protection is Military Handbook (MIL-HDBK) 1008C, *Fire Protection For Facilities Engineering, Design, and Construction*, which is tri-service criteria. When removing existing Halon 1301 fire extinguishing systems, you should provide fire protection per this handbook. If a fire extinguishing system is required, automatic sprinkler protection is the required protection. A gaseous fire extinguishing systems, such as FM-200, may be provided in addition to, but not in lieu of, required sprinkler protection. The following is a procedure to determine requirements when Halon 1301 systems are to be removed. This procedure is based on the requirements of MIL-HDBK 1008C.

(1) The first step is performing a fire protection (FP) analysis to determine required fire protection for the space currently protected by Halon 1301. In 1980's, many halon systems were installed because of user requests and the low cost of these systems, not because they were required. In some case Halon 1301 systems were erroneously installed in lieu of sprinklers. If the space is not protected by automatic sprinkler protection, the analysis should determine the need for sprinkler protection. The analysis should also address other fire protection requirements such as fire detection, fire separation, combustibility of construction, and the fire resistive rating of the communication and data cabling in underfloor and ceiling space. The analysis should also determine whether the facility has adequate contingency (backup) plans to continue mission-essential tasks in the event of loss of equipment and facilities due to fire or other catastrophic events.

(2) For installations that don't require sprinkler protection, it is a simple matter of removing the Halon system and not providing a replacement fire suppression system. If mission-essential operations have adequate contingency plans, and there are no other requirements for sprinkler protection, existing halon systems can be removed without providing a replacement fire suppression system. However, the existing fire detection system should remain in service. Adequate continency plans consist of a formal

emergency pre-plan and pre-arrangements to carry mission-essential tasks in an acceptable and timely manner, in the event of the loss of equipment, on-site records and the facility. The following cases are possible situations for determining fire protection requirements.

(a) Case 1: The fire protection (FP) analysis has determined that the area requires sprinkler protection, and there is no underfloor space. These facilities may include flight simulators, museums and electrical equipment installations. Halon systems will be replaced by required sprinkler protection, if sprinkler protection is not existing. Sprinkler systems should be wet-pipe type, however pre-action sprinkler systems are acceptable. Existing detection systems should remain. Installation of a gaseous fire extinguishing system is optional.

(b) Case 2: The FP analysis has determined that area requires sprinkler protection, and there is an underfloor space with data and communication cabling. Halon systems will be replaced with automatic sprinkler protection, if sprinkler protection is not existing. Sprinkler systems should be wet-pipe type, however pre-action sprinkler systems are acceptable. The National Electric Code (NEC) and as well as MIL-HDBK 1008C requires cabling to fire-rated. If cabling is fire-rated, no additional protection is needed, except for required smoke detection per MIL-HDBK 1008C, which refers to National Fire Protection Association (NFPA) 75, *Standard for the Protection of Electronic Computer/Data Processing Equipment*. If the underfloor space contains exposed (not in metallic conduit) non-fire-rated cabling, there are two choices; either replace the cabling, or if this is not feasible, provide an approved gaseous fire extinguishing system that protects the underfloor space. See below for list of approved gaseous fire extinguishing systems.

(c) Case 3: The space or facilities is protected by sprinkler protection and is equipped with required smoke detection. Then the existing halon systems can be removed. Installation of a gaseous fire extinguishing system is optional.

(d) Case 4: The space is not protected by a sprinkler system. However, sprinkler protection is not required. Then the existing halon systems can be removed and sprinkler protection will not be provided. Installation of a gaseous fire extinguishing system is optional.

(3) Gaseous Fire Extinguishing Systems for Occupied Spaces: The following are gaseous fire extinguishing agents listed in order of preference that are acceptable for occupied spaces. These gases are listed by the EPA "SNAP (Significant New Alternatives) Program" and have received toxicity clearance by the Army Surgeon General. None are "drop-in" replacement for halon systems. These systems are not substitute agents for required sprinkler protection. They may be provided in addition to required sprinkler protection or may be provided to protect underfloor spaces equipped with non-fire-rated cabling.

(a) FM-200, HFC-227, heptafluoropropane manufactured by the Great Lakes Chemical Corporation. The design concentration is 7.0 percent. The No Observable Effect Level (NOAEL) concentration is 9.0 percent.

(b) FE-13, HFC-23, trifluorobutane manufactured by Dupont Corporation. The design concentration is 18 percent. The NOAEL concentration is 24 percent for normally occupied spaces.

(4) Other Fire Extinguishing Systems:

(a) IG-541, Inergen, mixture of N<sub>2</sub> (52%) + Argon (40%) + CO<sub>2</sub> (8%) by Ansul. The design concentration is 39-42 percent and borders on the NOAEL concentration of 43 percent. This gas is stored at high pressures. Inergen is not recommended for occupied spaces because of the small safety factor between the design concentration and the NOAEL concentration. In addition, the cost of an Inergen system is high because of the large amount of gas needed and the cost of high-pressure equipment. Inergen may be safe for underfloor spaces.

(b) CEA-410, FC-3-1-10, perfluorobutane manufactured by 3M Corporation. Design concentration is 6.0 percent and far below the NOAEL concentration of 24 percent for normally occupied spaces. CEA-410 is the safest of the agents. Unfortunately, CEA-410 has a very long-life in the upper atmosphere and may contribute to global warming. EPA has accepted CEA-410 subject to "Narrow Use Limits" in accordance with the final SNAP ruling dated March 18, 1994. "Users must observe the limitations on CEA-410 acceptability by undertaking the following measures: (1) conduct an evaluation of foreseeable conditions of end use; (2) determine that human exposure to the other alternative agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions; and (3) determine that the physical or chemical properties or other technical constraints of the other preclude their use." Possible justification for using CEA-410 are that high concentrations of agent are needed due to the hazard to be encountered, the volume of the room may significantly fluctuate, and occupants must remain in space during and after discharges.

(c) Water Mist Systems: These systems are self-contained pressurized water systems that discharge a water mist when activated. They are not a substitution for required sprinkler protection.

(5) Safety Requirements for Gaseous Systems: Agent design concentrations for occupied spaces should not exceed 80 percent of NOAEL. In other words, FE-13's design concentration (18%) is less than 80% of its NOAEL (80% of 24 or 19.2%) and therefore is acceptable. Occupied spaces equipped with gaseous fire extinguishing will have: (a) a pre-discharge alarm allowing occupants adequate time to evacuate the space prior to discharge; (b) adequate aisles and exits to facilitate evacuation of the space; (c) outward swinging exit doors; and (d) warning and instruction signs. For more details on safety considerations, refer to NFPA 2001, *Standard for Clean Agent Fire Extinguishing Systems*.

(6) Water Sprinkler Protection For Electronic Equipment: Automatic sprinkler protection is required for protection of electronic equipment areas and computers rooms by the National Fire Codes, i.e. NFPA 75, *Standard for the Protection of Electronic Computer/Data Processing Equipment*, and by Factory Mutual and Industrial Risk Insurers, the two leading insurers of the computer industry. Automatic sprinkler systems are most reliable form of fire protection for this type of facility. Sprinklers not only control fires but also protect heat-sensitive equipment by cooling the room temperatures during a fire. In DoD, electronic equipment facilities are systematically protected by smoke detections systems, sprinkler systems, non-combustible construction, fire resistive separation from other occupancies, and by a fast responding, well-trained fire department. In addition, automatic equipment power shutdown connected to the sprinkler systems is recommended, as well as manual emergency power shutdown switches at each exit from the space. This combination of fire protection features provides an excellent level of fire protection, with automatic sprinklers providing the last line of defense against fire. Gaseous fire extinguishing systems, such as FM-200, do not have adequate reliability, nor are they effective in all fire scenarios, as a substitute for water sprinkler systems. However, if provided in addition to required sprinklers, a gaseous fire extinguishing system does increase the level of fire protection, but its initial and life cycle costs are high.

## ENGINEERING AND DESIGN

### Civil Works Guide Specifications Converted to CEGS:

a. Problem: Some duplication of subject matter and some misunderstandings have existed in the use of a system of guide specifications for Civil Works (CWGS) and another system for of guide specifications for Military Construction (CEGS). Also, this dual system approach is inconsistent with the "One Door to the Corps" policy.

b. Probable Solution: Civil Works guide specifications, CWGS, are scheduled to be converted to CEGS specifications by the end of FY98. A coordinated document numbering system in accordance with the Construction Specifications Institute (CSI) recommendations contained in their MasterFormat has been established. Some duplication of subject matter coverage will continue to exist for a while, but this will be resolved as the sections involved come up for revision. An additional effort is underway to develop a single regulation on specifications which will be applicable to both Civil Works and Military Construction.

## ENGINEERING AND DESIGN

### Year 2000 (Y2K) Computer Compliance:

- a. Problem: Computer systems and equipment included in facilities constructed by the Corps of Engineers must function properly regardless of calendar year. Potential problems will occur if a two-digit year identifier interprets the year 2000 as something other than that year.
- b. Probable Solution: Responsibilities and general guidance regarding year 2000 computer compliance within the Corps of Engineers is addressed in HQUSACE memorandum, Subject: Year 2000 (Y2K) Computer Compliance, dated 23 July 1998 (copy attached). More detailed guidance for including Y2K compliance requirements in construction contracts and procedures for verifying compliance during acceptance testing is contained in ETL 1110-3-492. For those who want more information on potential building systems impact of Y2K and an approach to overcome those impacts, the Year 2000 Compliance Study is recommended and is available at Internet URL:

***<http://www.hnd.usace.army.mil/omee/y2kstudy/index.html>***



DEPARTMENT OF THE ARMY  
U.S. Army Corps of Engineers  
WASHINGTON, D.C. 20314-1000

REPLY TO  
ATTENTION OF:

23 JUL 1999

CEMP-ET (1110)

MEMORANDUM FOR COMMANDERS, MAJOR SUBORDINATE COMMANDS

SUBJECT: Year 2000 (Y2K) Computer Compliance

1. The Y2K computer problem effects many systems other than large main frame computers and the legacy application programs written to run on them. Our construction projects contain many computer based systems that rely on date and time calculations, such as elevator controls, Heating Ventilation Air Condition (HVAC) controls, energy monitoring systems, electronic security systems, and many other related systems that control building environments or process control. I am relying on you to assure that any future and ongoing projects, both under design and construction, are fully Y2K compliant.
2. The Federal Acquisition Regulation (FAR) requires that agencies acquiring information technology ensure that solicitations and contracts require the information technology to be Y2K compliant if it will be required to perform date/time processing involving dates subsequent to 31 December 1999. An alternative solution offered by the FAR is to require that non-compliant information technology be upgraded to be Y2K compliant prior to 31 December 1999 or the earliest date on which the information technology may be required to perform date/time processing involving dates later than 31 December 1999.
3. As the Army's Engineers, we must also provide assistance to all Army elements to identify and resolve Y2K problems in existing facilities. In this regard, several of our Centers of Expertise such as Huntsville Engineering Support Center (HNC) have existing Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts that can be used to survey and resolve most Y2K issues. These contracts can be used for individual systems or to provide installation wide assistance, specifically in accordance with the scopes of the contracts.
4. My technical point of contact for Y2K issues is Mr. Mohan Singh, (202) 761-0211.

FOR THE COMMANDER:

  
MILTON HUNTER  
Major General, USA  
Director of Military Programs

## ENGINEERING AND DESIGN

### Recommended Changes to Engineering Documents:

a. Problem: Over the years use of ENG Form 3078, Recommended Changes to Engineering Documents, has proved to be an effective means of providing comments on engineering documents for consideration by the proponents of the documents. Since ENG Form 3078 is a hardcopy, coordinate first, and mail-in system, it is much slower than is now possible through electronic means.

b. Probable Solution: Although ENG Form 3078 is still fully acceptable for the submission of recommended changes to engineering documents, an electronic means for submission is now available on TECHINFO at the following URL:

***<http://www.hnd.usace.army.mil/techinfo/index.htm>***

The electronic method permits direct submission of comments to HQUSACE and provides two offices in the submitter's chain of command with a copy of the submission. Following review by HQUSACE, the submitter and the two offices will be advised of the action taken. The electronic method is simple, quick, and efficient; this method is recommended for all recommendations not requiring paper documentation.

## ENGINEERING AND DESIGN

### Guide Specification Section CEGS-01415, METRIC MEASUREMENTS:

a. Problem: Most of our military construction projects are now being designed using the metric system of measurement. However, a number of metric project contract documents are still lacking specification section 01415, Metric Measurements.

b. Probable Solution: Section 01415, Metric Measurements, shall be included in all specification packages for projects designed in metric. This section contains definitions of the metric, hard metric, soft metric, and neutral measurements. It also explains under what circumstances both metric and English inch-pound units (dual measurements) are and are to be included in the project specifications.

c. Implementation: The implementation of this requirement is considered to have **special application** as defined by ER 1110-345-100.

## RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

### ENG Form 3078 Follow-up Actions:

a. Problem: ENG Forms 3078 which indicate an affirmative action by HQUSACE are provided to the originating USACE Commands. Since the ENG Forms 3078 will result in changes to the criteria and guidance, all USACE Commands should receive the same information to be used in criteria designs.

b. Probable Solution: Reviewed ENG Forms 3078 which make a commitment to change guide specifications, manuals, etc. will be included in the EIRS Bulletin, unless the change has been accomplished. This enclosure includes a copy of approved ENG Forms 3078.

ENG FORMS 3078

<u>CONTROL NO.</u>	<u>PUB NO.</u>	<u>OFFICE SYMBOL</u>
1053	CEGS-04200	CESAS-CD-QT
1054	CEGS-06100	CEMRK-CO-C
1055	CEGS-06100	CEMRK-CO-C
1056	CEGS-08700	CESPK-CO-C
1058	CEGS-02935	CENW0-CD-Q
1060	CEGS-16311	CESPK-CO-C
1061	CEGS-16370	CESPK-CO-C
1062	CEGS-16375	CESPK-CO-C

## RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE

CESAS-CD-QT

10 FEB 98

DOCUMENT NUMBER AND DATE

CEGS 04200

DOCUMENT TITLE

MASONRY

DOCUMENT TYPE

 DRAWING ((STANDARD) (DEFINITIVE)) SPECIFICATION ((GUIDE) (STANDARD)) DESIGN GUIDES TECHNICAL MANUAL ENGINEER MANUAL ENGINEER REGULATION OTHER MILITARY CIVIL WORKS

SUBJECT

PARAGRAPH 1.2 SUBMITTALS

ROUTING (Check)

ACTION RECOMMENDED BY DISTRICT COMMANDER

FROM:

(See Sheet 2)

District Commander  
U.S. Army Engineer District,  
ATTN.: CFSAS-EN  
P.O. Box 889  
Savannah, GA 31402

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

CESAS-EN

Joseph H. Rogers Jr., Chief, Engineering Division

DATE

18 Feb 1998

SIGNATURE

1a. TO:  
HQUSACE (CEMP-EA)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b. TO:

Division Commander  
U.S. Army Engineer Division,  
ATTN.: CFSAD-FN-IM  
Forsyth St., SW  
Atlanta, GA 30335

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Concur fully with problem statement and recommended solution.

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

CESAD-ET-EA

STEPHEN F. GOODIN, Division Architect

DATE

27 March 1998

SIGNATURE

2. TO:

HQUSACE (CEMP-EA)  
WASH DC 20314-1000

COMMENTS OR ACTION BY COMMANDER/USACE

Concur.

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

CEMP-E

KISUK CHEUNG, P.E. C, ENGR AND CONST DIV., D/MP

DATE

3 May 98

SIGNATURE

3. TO:

Division Commander  
U.S. Army Engineer Division,

COMMENTS BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4. RETURN TO:

District Commander  
U.S. Army Engineer District,  
ATTN.: CFSAS-CD-QT  
P.O. Box 889  
Savannah, GA 31402

COPY FURNISHED

RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (*Cont'd*)OFFICE SYMBOL AND DATE  
CESAS-CD-QT  
10 FEB 98PROBLEM DESCRIPTION AND ACTION RECOMMENDED (*Use additional sheets if necessary.*)

1. PROBLEM:

## PARAGRAPH 1.2 SUBMITTALS

A. SD-04 Drawings, Masonry Work: Paragraph states, "Drawings showing the location and layout of glass block units. Drawings including plans, elevations, and details of wall reinforcement; details of reinforcing bars at corners and wall intersections; etc."

B. Placing glass block units in the opening sentence implies that all following requirements pertain to glass block units. This is misleading since glass block does not require wall reinforcement.

2. RECOMMENDED SOLUTION:

Suggest revising paragraph 1.2 Submittals, SD-04 Drawings, Masonry Work as follows:

A. Delete first sentence, "Drawings showing the location and layout of glass block units."

B. After last sentence add, "Drawings shall also be provided showing the location and layout of glass block units."

NAME OF SUBMITTER (*Optional*)

Carlton A. Wright

WORK TELEPHONE NUMBER (*Optional*)

(912) 652-5247

# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE

CEMRK-CO-C

17 Jan 97

DOCUMENT NUMBER AND DATE

CEGS Section 06100

DOCUMENT TITLE

Section 06100  
Rough Carpentry

DOCUMENT TYPE

DRAWING ((STANDARD) [DEFINITIVE])

SPECIFICATION ((GUIDE) [STANDARD])

DESIGN GUIDES

TECHNICAL MANUAL

ENGINEER MANUAL

ENGINEER REGULATION

OTHER

MILITARY

CIVIL WORKS

SUBJECT

ROUTING (Check)

ACTION RECOMMENDED BY DISTRICT COMMANDER

FROM:

(See Sheet 2)

District Commander  
U.S. Army Engineer District,

Kansas City District  
ATTN: CEMRK-CO-C  
601 E. 12<sup>TH</sup> STREET  
Kansas City, MO 64106

OFFICE SYMBOL

CEMRK-CO

NAME AND TITLE (Print or Type)

William J. Zaner, Ch. Con-ops Div.

DATE

1/20/97

SIGNATURE

*William J. Zaner*

1a. TO:

HQSACE (CEMP-EA)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b. TO:

Division Commander  
U.S. Army Engineer Division,

Missouri River Div.  
Region  
ATTN: CEMRD-ET-C  
CENWD-MR-ET-C

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Recommend Approval

OFFICE SYMBOL

CENWD-MR-ET-C

NAME AND TITLE (Print or Type)

Eric Anthony Anct

Construction Program Manager

DATE

26 May 98

SIGNATURE

*Eric Anthony Anct*

2. TO:

HQSACE (CEMP-EA)  
WASH DC 20314-1000

COMMENTS OR ACTION BY COMMANDER, USACE

Concur.

OFFICE SYMBOL

CEMP-E

NAME AND TITLE (Print or Type)

KISUK CHEUNG, P.E., ENGR AND CONST DIV.

DATE

5 Jun 98

SIGNATURE

*Kisuk Cheung*

3. TO:

Division Commander  
U.S. Army Engineer Division,

Missouri River Div.  
ATTN: CEMRD-ET-C

COMMENTS BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4. RETURN TO:

District Commander  
U.S. Army Engineer District,

Kansas City District  
ATTN: CEMRK-CO-C  
601 E. 12<sup>TH</sup> STREET  
Kansas City, MO 64106

COPY FURNISHED

## RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)

OFFICE SYMBOL AND DATE

CEMRK-CO-C

17 Jan 97

PROBLEM DESCRIPTION AND ACTION RECOMMENDED (Use additional sheets if necessary.)

1. PROBLEM:

Specification Section 06100 para 3.1.5 states "...Trussed rafters shall be installed in accordance with TPI 85..." According to the Truss Plate Institute, TPI 85 has been replaced by *ANSI/TPI 1-1995, National Design Standard for Metal Plate Connected Wood Truss Construction*. However, this is a design reference with little discussion on handling and installation of trusses. A more appropriate reference is *HIB-91, Handling Installing & Bracing Metal Plate Connected Wood Trusses*. The specification should reference this document. Also, the references to TPI documents should be revised in the beginning of the specification.

2. RECOMMENDED SOLUTION:

Revise 06100, para 3.1.5 to reference the correct document.

NAME OF SUBMITTER (Optional)

John Cichelli John Cichelli

WORK TELEPHONE NUMBER (Optional)

1816, 426-7886

**RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS**

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE

CEMRK-CO-C  
13 JAN 97

DOCUMENT NUMBER AND DATE  
CEGS Section 06100

DOCUMENT TITLE  
Section 06100  
Rough Carpentry

DOCUMENT TYPE

DRAWING ((STANDARD) [DEFINITIVE])       SPECIFICATION ((GUIDE) [STANDARD])

DESIGN GUIDES       TECHNICAL MANUAL

ENGINEER MANUAL       ENGINEER REGULATION       OTHER

MILITARY

CIVIL WORKS

SUBJECT

ROUTING (Check)

FROM:

District Commander  
U.S. Army Engineer District,  
Kansas City District  
ATTN: CEMRK-CO-C  
601 E. 12th Street  
Kansas City, MO 64106

ACTION RECOMMENDED BY DISTRICT COMMANDER

(See Sheet 2)

OFFICE SYMBOL CEMRK-CO	NAME AND TITLE (Print or Type) William J. Zuner, CH, Con-ops Div
DATE 1/14/97	SIGNATURE <i>William J. Zuner</i>

1a. TO: HOUSACE (CEMP-EA) WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_ (Date)

1b. TO: Division Commander U.S. Army Engineer Division, Missouri River Region  
ATTN: ~~CENWD-MR-ET-C~~  
CENWD-MR-ET-C

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Recommend Approva!

OFFICE SYMBOL <del>CENWD-MR-ET-C</del> CENWD-MR-ET-C	NAME AND TITLE (Print or Type) Eric Anthony Arndt Construction Program Manager
DATE 26 May 98	SIGNATURE <i>Eric Arndt</i>

2. TO: HOUSACE (CEMP-EA) WASH DC 20314-1000

COMMENTS OR ACTION BY COMMANDER, USACE

Please see attached sheet.

OFFICE SYMBOL CEMP-E	NAME AND TITLE (Print or Type) KISUK CHEUNG, P.E., C, ENGR AND CONST DIV.
DATE 5 June	SIGNATURE <i>for Mohan AG</i>

3. TO: Division Commander U.S. Army Engineer Division, Missouri River Div.  
ATTN: CEMRD-ET-C

COMMENTS BY DIVISION COMMANDER

OFFICE SYMBOL	NAME AND TITLE (Print or Type)
DATE	SIGNATURE

4. RETURN TO: District Commander U.S. Army Engineer District, Kansas City District  
ATTN: CEMRK-CO-C  
601 E. 12th Street  
Kansas City, MO 64106

COPY FURNISHED

RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)

OFFICE SYMBOL AND DATE

CEMRK-CO-C  
M13 Jan 97

PROBLEM DISCRPTION AND ACTION RECOMMENDED (Use additional sheets if necessary.)

1. PROBLEM:

Partition & wall framing

Specification Section 06100, para 3.1.3 requires top plates of wood framed walls to be lapped at least 2 feet. This conflicts with the Uniform Building Code and the CABO One & Two Family Dwelling code which requires 4 feet minimum lap.

2. RECOMMENDED SOLUTION:

Revise Section 06100 to require 4 feet minimum lap of top plate.

NAME OF SUBMITTER (Optional)

John Cichelli John Cichelli

WORK TELEPHONE NUMBER (Optional)

(816) 426-7886

CEMP-ET

2 June 1998

Response to CEMRK-CO-C ENG Form 3078 dated 13 January 1997, Subject: CEGS-6100  
Rough Carpentry

The suggestion to increase the minimum lap length of top plates is technically sound and acceptable. However, the referenced codes are not adopted nationwide and are not consistent with the AEI instructions or references specified in the specification.

# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

SHEET 1 2 SHEETS

(Submit a separate form in quadruplicate for each report)

OFFICE SYMBOL AND DATE

(ER 1110-345-100)

DOCUMENT NUMBER AND DATE

DOCUMENT TITLE

08700 Mar 96, Notice 2 (Aug 97)

BUILDERS' HARDWARE

CESPK-CO-C  
APRIL 27, 1998

DOCUMENT TYPE

- DRAWING ((STANDARD) (DEFINITIVE))   
  SPECIFICATION ((GUIDE) (STANDARD))  
 DESIGN GUIDES   
  TECHNICAL MANUAL  
 ENGINEER MANUAL   
  ENGINEER REGULATION   
  OTHER

- MILITARY  
 CIVIL WORKS

SUBJECT

Paragraph 2.4.5 Lock Cylinders

ROUTING (Check)

ACTION RECOMMENDED BY DISTRICT COMMANDER  
(See Sheet 2)

FROM:

District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M

OFFICE SYMBOL

CESPK-ED

NAME AND TITLE (Print or Type)

BRIAN W. DOYLE, CHIEF, ENGINEERING DIVISION

DATE

5 May 98

SIGNATURE

*Carl Van Dam*

1a.

TO:  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b.

TO:  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
CESPD-ET

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

**Recommend approval**

OFFICE SYMBOL

CESPD-ET-E

NAME AND TITLE (Print or Type)

JACK E. FARLESS, Chief, Engineering Division

DATE

6/4/98

SIGNATURE

*J. Farless*

2.

TO:  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Essentially Concur Recommendation will be consider for a  
**Notice in progress on this issue.**

OFFICE SYMBOL

CEMP-E

NAME AND TITLE (Print or Type)

DWIGHT A. BERANEK, P.E., ENGR AND CONST DIV.

DATE

SIGNATURE

*for Mohan AD*

3.

TO:  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
ATTN: CESPD-ET  
333 Market Street  
San Francisco, CA 94105

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4.

TO:  
District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M (ET&S)

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RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (*Cont'd*)

OFFICE SYMBOL AND DATE

CESPK-CO-C  
APRIL 27, 1998PROBLEM DESCRIPTION AND ACTION RECOMMENDED (*Use additional sheets if necessary.*)

## 1. PROBLEM:

A. Paragraph 2.2.4.5 Lock Cylinders: Reference NOTE enclosed in asterisks: "Cylinders compatible with most existing systems can be furnished by multiple manufacturers".

According to a CEMP-EA MEMO Dated 13 May 1996 and Mr. Rick Dahnke, adding a sentence narrative to paragraph 2.4.5, the paragraph would then comply with requirements to add a statement allowing "or equal" systems as indicated in CEMP-EA MEMO, for existing systems with interchangeable cores. Paragraph 4: "Specifications must indicate that "equal" systems are acceptable".

## 2. RECOMMENDED SOLUTION:

A. Add a sentence to the end of the paragraph 2.4.5 following the word "cores".

[ An equivalent manufacturers locking system is acceptable. Equivalent locking system shall have [ ] pin interchangeable cores, and the keys and cores milled to match the existing [ ] keyway system].

NAME OF SUBMITTER (*Optional*)

Gener Ernst, CESPK-CO-C, thru Steve Frietas, Criteria Management Unit

WORK TELEPHONE NUMBER (*Optional*)

(916) 557-7296

# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE  
CENWO-CD-Q

10 Mar 1998

DOCUMENT NUMBER AND DATE

CEGS 02935 06/90

DOCUMENT TITLE

TURF

DOCUMENT TYPE

DRAWING ((STANDARD) (DEFINITIVE))

SPECIFICATION ((GUIDE) (STANDARD))

DESIGN GUIDES

TECHNICAL MANUAL

ENGINEER MANUAL

ENGINEER REGULATION

OTHER

MILITARY

CIVIL WORKS

SUBJECT

Soil Tests

ROUTING (Check)

FROM:

District Commander  
U.S. Army Engineer District,

ACTION RECOMMENDED BY DISTRICT COMMANDER

(See Sheet 2)

OFFICE SYMBOL

CENWO-CD

NAME AND TITLE (Print or Type)

ROBERT J. VODICKA, Acting Chief, Construction Division

DATE

3-10-98

SIGNATURE

*Robert J. Vodicka*

1a.

TO:  
HQUSACE (CEMP-EA)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b.

TO:  
Division Commander  
U.S. Army Engineer Division,

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

See attached comments.

OFFICE SYMBOL

CENWD-MR-ET

NAME AND TITLE (Print or Type)

KRISTINE L. ALLAMAN, P.E.  
Director, Engrg & Tech Services

DATE

6-12-98

SIGNATURE

*Kristine L. Allaman*

2.

TO:  
(CEMP-ET)  
HQUSACE (CEMP-EA)  
WASH DC 20314-1000

COMMENTS OR ACTION BY COMMANDER, USACE

CEGS will be updated in FY99 to reflect the recommendation.

OFFICE SYMBOL

CEMP-E

NAME AND TITLE (Print or Type)

DWIGHT A. BERANEK, P.E.  
Chief, Engineering and Construction Div.

DATE

8/7/98

SIGNATURE

*Dwight A. Beranek*

3.

TO:  
Division Commander  
U.S. Army Engineer Division,

COMMENTS BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4.

RETURN TO:  
District Commander  
U.S. Army Engineer District,

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**RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)**

OFFICE SYMBOL AND DATE

PROBLEM DESCRIPTION AND ACTION RECOMMENDED (Use additional sheets if necessary.)

**1. PROBLEM:**

Turf Section 02935, 2.1.4.3 Organic Soil Admendments requires a soil test to determine the fertilizer rate and amendments to soil. Fertilizer and admendments are unbiddable because quantities can not be determined at time of bid opening. The Contractor does not know till after award and performance of soil test what amendments and fertilizer rates are required. Rates and types of amendments can vary greatly. Present specifications does not clearly indicate which types and rates are required prior to bid opening.

Reference Case No. 9024 from CEMP-E, dated Dec 1995. above is a follow on recommendation.

**2. RECOMMENDED SOLUTION:**

Suggest establishing a rate and formulation for fertilizer, lime and other highly probable amendments. Have the bidders bid on these rates and formulations. Add a statement if rates vary after soil test, adjustments will be made in accordance with the changes clause or perform the soil tests as part of the design investigation and specify exact amendments and rates.

NAME OF SUBMITTER (Optional)

Lawrence E Seeba, P.E.

WORK TELEPHONE NUMBER (Optional)

(402) 221-4160

# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE

DOCUMENT NUMBER AND DATE

16311 Nov 92, Notice 4 Dec 96

DOCUMENT TITLE

Electric Supply Station and Substation

CESPK-CO-C  
APRIL 24, 1998

DOCUMENT TYPE

- DRAWING ((STANDARD) (DEFINITIVE))     SPECIFICATION ((GUIDE) (STANDARD))  
 DESIGN GUIDES     TECHNICAL MANUAL  
 ENGINEER MANUAL     ENGINEER REGULATION     OTHER

- MILITARY  
 CIVIL WORKS

SUBJECT  
Padlocks

ROUTING (Check)

FROM:  
  
District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M

ACTION RECOMMENDED BY DISTRICT COMMANDER  
(See Sheet 2)

OFFICE SYMBOL

CESPK-ED

NAME AND TITLE (Print or Type)

BRIAN W. DOYLE, CHIEF, ENGINEERING DIVISION

DATE

5 May 98

SIGNATURE

*Carl Van Don*

1a. TO:  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b. TO:  
  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
CESPD-ET

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

**Recommend approval.**

OFFICE SYMBOL

CESPD-ET-E

NAME AND TITLE (Print or Type)

JACK E. FARLESS, CHIEF, ENGINEERING DIVISION

DATE

8 June 98

SIGNATURE

*Jack E. Farless*

2. TO:  
  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Please see attached sheet.

OFFICE SYMBOL

CEMP-E

NAME AND TITLE (Print or Type)

KISUK CHEUNG, P.E., C, ENGR AND CONST DIV.

DATE

20 Jul 98

SIGNATURE

*for Mohan AS*

3. TO:  
  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
ATTN: CESPD-ET  
333 Market Street  
San Francisco, CA 94105

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4. TO:  
  
District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M (ET&S)

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**RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)**

OFFICE SYMBOL AND DATE

CESPK-CO-C  
APRIL 24, 1998PROBLEM DESCRIPTION AND ACTION RECOMMENDED *(Use additional sheets if necessary.)***1.** PROBLEM:

Paragraph 2.11.10 Padlocks:

A. ASTM F 883-90 also references:

Grades, Paragraph 4.2: (Six levels of performances, Grade 1, the lowest and Grade 6, the highest).

Options, Paragraph 4.3.

Size: Paragraph X1-6: Paragraph indicates "Padlocks generally sized according to the width of the case".

**2.** RECOMMENDED SOLUTION:

Revise paragraph 2.11.10:

"Padlocks shall comply to ASTM F 883-90, Type [\_\_\_], Grade [\_\_\_], Option [\_\_\_], Size (according to the width of the case) [\_\_\_].

NAME OF SUBMITTER *(Optional)*

Gener Ernst, CESPK-CO-C, thru Steve Frietas, Criteria Management Unit

WORK TELEPHONE NUMBER *(Optional)*

(916) 557-7296

10600

12  
Approved as noted:

RECOMMENDED SOLUTION:

1. Revise paragraph 2.11.10 to read as follows: "Padlocks shall comply with Section 08700 'Builders' Hardware.'"
2. Revise padlocks portion of Section 08700 to include required types, grades and necessary options.

# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS

(Submit a separate form in quadruplicate for each report)

(ER 1110-345-100)

OFFICE SYMBOL AND DATE

DOCUMENT NUMBER AND DATE

16370 Jan 93, Notice 4 Jan 97

DOCUMENT TITLE

ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND

CESPK-CO-C  
APRIL 27, 1998

DOCUMENT TYPE

- DRAWING ((STANDARD) (DEFINITIVE))     SPECIFICATION ((GUIDE) (STANDARD))  
 DESIGN GUIDES     TECHNICAL MANUAL  
 ENGINEER MANUAL     ENGINEER REGULATION     OTHER

- MILITARY  
 CIVIL WORKS

SUBJECT

Paragraph 2.19 Padlocks:

ROUTING (Check)

ACTION RECOMMENDED BY DISTRICT COMMANDER  
(See Sheet 2)

FROM:

District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M

OFFICE SYMBOL

CESPK-ED

NAME AND TITLE (Print or Type)

BRIAN W. DOYLE, CHIEF, ENGINEERING DIVISION

DATE

5 May 98

SIGNATURE

*Carl Van Dam*

1a.

TO:  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

INFORMATION COPY OF THIS ENG FORM 3078 WAS SENT \_\_\_\_\_

(Date)

1b.

TO:  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
CESPD-ET

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

**Recommend approval.**

OFFICE SYMBOL

CESPD-ET-E

NAME AND TITLE (Print or Type)

JACK E. FARLESS, CHIEF, ENGINEERING DIVISION

DATE

8 June 98

SIGNATURE

*Jack E. Farless*

2.

TO:  
HQUSACE (CEMP-ET)  
WASH DC 20314-1000

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

Please see attached sheet.

OFFICE SYMBOL

CEMP-E

NAME AND TITLE (Print or Type)

KISUK CHEUNG, P.E., C, ENGR AND CONST DIV.

DATE

20 Jul 98

SIGNATURE

*for mohaw*

3.

TO:  
Division Commander  
U.S. Army Engineer Division,  
South Pacific  
ATTN: CESPD-ET  
333 Market Street  
San Francisco, CA 94105

COMMENTS, ACTION, OR RECOMMENDATION BY DIVISION COMMANDER

OFFICE SYMBOL

NAME AND TITLE (Print or Type)

DATE

SIGNATURE

4.

TO:  
District Commander  
U.S. Army Engineer District,  
Sacramento  
CESPK-ED-M (ET&S)

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# RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)

OFFICE SYMBOL AND DATE  
CESPK-CO-C  
APRIL 27, 1998

## PROBLEM DESCRIPTION AND ACTION RECOMMENDED (Use additional sheets if necessary.)

**1. PROBLEM:**

Paragraph 2.19 Padlocks:

ASTM F 883-90 also references:

Grades, Paragraph 4.2: (Six levels of performances, Grade 1, the lowest and Grade 6, the highest).

Options, Paragraph 4.3.

Size: Paragraph X1-6: Paragraph indicates "Padlocks generally sized according to the width of the case".

**2. RECOMMENDED SOLUTION:**

Revise paragraph 2.19:

"Padlocks shall comply to ASTM F 883-90, Type [ ], Grade [ ], Option [ ], Size (according to the width of the case) [ ].

NAME OF SUBMITTER (Optional)  
Gener Ernst, CESPK-CO-C, thru Steve Frietas, Criteria Management Unit

WORK TELEPHONE NUMBER (Optional)  
(916) 557-7296

15  
Approved as noted:

RECOMMENDED SOLUTION:

1. Revise paragraph 2.19 to read as follows: "Padlocks shall comply with Section 08700 'Builders' Hardware.'"
2. Revise padlocks portion of Section 08700 to include required types, grades and necessary options.



**RECOMMENDED CHANGES TO ENGINEERING DOCUMENTS (Cont'd)**

OFFICE SYMBOL AND DATE

CESPK-CO-C  
APRIL 24, 1998PROBLEM DESCRIPTION AND ACTION RECOMMENDED *(Use additional sheets if necessary.)***1. PROBLEM:**

Paragraph 2.14 Padlocks:

A. Option [EPC] & Size [2] is reference. Type EPC was referenced in Federal Specification FF-P-101F, 30 May 1984. Per Notice 1, 28 May 1990, this Federal Specification was canceled. Type EPC was referenced as "Pin tumbler mechanism, 5 or more pins, Size 2.

ASTM F883-90 does not reference "Type "EPC & Size 2. Reference is made to: Paragraph 4, Classification; Paragraph 4.2, Grades: Six levels of performance, Grade 1 the lowest and Grade 6 the highest; Paragraph 4.3, Options; Paragraph X1-6, Size: Paragraph indicates: "Padlocks generally sized according to the width of the case."

B. "Paragraph 3.7.2 Padlocks: Options keying are referenced: "[alike][as directed by the Contracting Officer] Size [ ]".

**2. RECOMMENDED SOLUTION:**

A. Revise paragraph 2.14: "Padlocks shall conform to ASTM F 883-90, Type [ ], Grade [ ], Option [ ], Size (according to the width of the case) [ ].

B. Revise paragraph 3.7.2: "Padlocks shall comply to ASTM F 883-90, Type [ ], Grade [ ], Option [ ], Size (according to the width of the case) [ ].

NAME OF SUBMITTER *(Optional)*

Gener Ernst, CESPK-CO-C, thru Steve Frietas, Criteria Management Unit

WORK TELEPHONE NUMBER *(Optional)*

(916) 557-7296

18  
Approved as noted:

RECOMMENDED SOLUTION:

1. Revise paragraphs 2.14 and 3.7.2 to read as follows: "Padlocks shall comply with Section 08700 'Builders' Hardware.'"
2. Revise padlocks portion of Section 08700 to include required types, grades and necessary options.

## CURRENT DESIGN CRITERIA

### Recently Issued Criteria:

a. Problem: There have been instances where current design criteria were not used in project designs because recently issued Engineering and Design documents were placed in a central office file and were not distributed to design personnel who need to be aware of the current criteria and guidance.

b. Probable Solution: From all reports, EIRS Bulletins are widely circulated within Engineering Division of USACE Commands and are readily accessible to all engineering and design personnel. This enclosure includes a listing of recently issued criteria.

Engineering and Design criteria for Civil Works and Military Programs are distributed by the "Construction criteria Base (CCB)" System, National Institute of Building Sciences (NIBS). CCB is available in CD-ROM format and is on the CCB web site at ***<http://www.nibs.org/ccb>***. Information about subscribing to CCB may be obtained by calling NIBS at (202) 289-7800. Current Military Programs Engineering and design criteria are also available on our TECHINFO web site at ***<http://www.hnd.usace.army.mil/techinfo/index.htm>***. For further information on TECHINFO, call the Huntsville Engineering and Support Center, CEHNC-ED-ES-G, at (256) 895-1821 between 8:00 a.m. and 4:00 p.m., Central Time.

PUBLICATION LIST

<u>PUB-NO.</u>	<u>PUBLICATION</u>	<u>PUB-DATE</u>
EP 200-1-9	Effectively Working with State and Federal Regulators	19 Aug 98
ETL 1110-3-490	Design of Chemical Agent Collective Protection Shelters for New and Existing Facilities	13 May 98
ETL 1110-3-491	Sustainable Design for Military Facilities	30 Jun 98
ETL 1110 3-492	Year 2000 (Y2K) Compliance and Acceptance Procedures	2 Aug 98
ETL 1110-3-493	Pavement - Transportation Computer Assisted	26 Aug 98