



**US Army Corps
of Engineers®**

ENGINEERING AND CONSTRUCTION BULLETIN

No. 2014-20

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Subject: Consolidated Quality Improvement ECB Requirements for Design and Construction of Airfield and Heliport Projects

Applicability: Directive

1. This ECB provides a consolidated source of requirements issued by ECBs to improve the quality of design and construction of airfields/heliports. This ECB consolidates the requirements previously issued in ECB 2012-5, ECB 2011-17, ECB 2011-18 and ECB 2012-27.

2. References:

- a. AR 420-1, Army Facilities Management, 12 Feb 08, with RAR 002 dated 24 Aug 12.
- b. AFMAN 32-1084, Facilities Requirements, dated 20 April 2012.
- c. Memorandum CECW-EWS, 5 November 2002, Design Review Policy for Airfield, Railroad and Roadway Projects. <https://transportation.erdc.dren.mil/tsmcx/downloads/revpolcy.pdf>
- d. [UFGS 32 13 11](#), Concrete Pavement for Airfields and Other Heavy-Duty Pavements More Than 10,000 Cubic Yards.
- e. [UFGS 32 12 15.13](#), Hot-Mix Asphalt (HMA) for Airfields.
- f. Memorandum, CECW-E, 2 February 2001, subject: Military Construction Management Policy for Airfield Pavement Projects. https://transportation.erdc.dren.mil/tsmcx/training_paving.aspx
- g. UFC 3-260-01, Airfield and Heliport Planning and Design, dated 17 Nov 08
- h. UFC 3-260-02, Pavement Design for Airfields, dated 30 Jun 01
- i. UFC 3-535-01, Visual Air Navigation Facilities, dated 17 Nov 05.
- j. AR 95-2, Airspace, Airfields/Heliports, Flight Activities, Air Traffic Control, and Navigational Aids, dated 10 Apr 07, with Rapid Action Revision (RAR) dated 16 Oct 08.

3. Background. Airfield pavement projects are typically costly and complex, requiring a high degree of technical skill, knowledge and experience during both design and construction phases to produce quality airfield pavements for our military program customers. An essential tenant of USACE quality assurance is to focus on ensuring all appropriate actions are successfully accomplished prior to start of a major phase of engineering or construction work.

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4. Design

a. Design - Review

(1) Current USACE policy on design reviews of airfield projects by the Transportation System Center (TSC), a USACE Mandatory Center of Expertise, is provided in above listed reference 2.c., paragraph 3.a. All airfield project designs, regardless of funding type or scope, require TSC review. Airfield projects include airfield pavements, aircraft hangar floors, airfield lighting, marking and navigational aids (NAVAIDS), hydrant fuel projects (pavements portion only) and any facility located within the airfield operational airspace.

(2) UFC 3-260-02, Chapter 1, paragraph 5, states “All slabs on grade required to support aircraft loadings, whether interior (hangar floors) or exterior, are to be considered airfield pavements.”

b. Design - Criteria and Specifications

(1) Airfield designs will be in conformance with UFC 3-260-01, UFC 3-260-02, and UFC 3-535-01 (references 2.g, 2.h, and 2.i, respectively).

(2) All Army and Air Force pavement projects are to be designed and constructed using appropriate UFGSs and UFCs (references 2.a., and 2.j. for Army and reference 2.b. for Air Force), regardless of the delivery method used or the DOD organization managing the project. This also applies to projects at or adjacent to air operational facilities or imaginary surfaces.

(3) Un-bracketed text on UFGSs (references 2.d and 2.e above) are prohibited from being edited for USACE airfield projects without specific prior approval by the USACE Transportation System Center (TSC). This requirement was established as a result of design and construction problems that resulted from undisciplined and improper editing of the mandatory UFGS. A modified reference 2.d, UFGS 32 13 11, suitable for hangar floors is available from the TSC and should be coordinated for during the early stages of project development.

(4) Engineering and construction project specification writers (USACE in-house and/or A-Es) are responsible to submit any recommended changes (line through deletions and underline additions) to current UFGSs to the USACE TSC for approval or disapproval prior to making any changes to un-bracketed portions of the UFGS. Provide supporting documentation with change request indicating the reasons for the recommended change(s).

(5) Waiver procedures will be followed for Army, Air Force, and Navy facilities as provided in UFC reference 2.g., Appendix B; reference 2.h., Appendix B; and reference 2.i, paragraph 1-11.

5. Construction - Quality Assurance

a. Workshops: On-site airfield paving workshops by the USACE TSC are required for all projects with a current working estimate over \$5 million for airfield pavement portion of the project (Reference 2.f.).

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b. **On-Site Support:** Additional on-site technical support services from the USACE TSC during the construction phase start-up activities are required for all projects, regardless of the contract delivery method, with the airfield pavement portion exceeding \$10 million. This support will include observing and analyzing construction test section results, verification of concrete and asphalt plant calibration, and observing work quality during early phases of the construction paving portion of the project. Project managers should typically plan for budgeting purposes that this supplemental start-up quality assurance support will involve two persons for a two-week period (or one person for 4 weeks), during the initial construction phase of the work. This additional support is to be included in the QA plan and PMP for budget synchronization.

c. **Mix Design Review:**

(1) Portland Cement Concrete (PCC) mix design submittals and Hot-Mix Asphalt (HMA) job-mix-formula submittals for USACE-managed airfield pavement projects will reviewed by the USACE TSC prior to approval of these submittals by the Contracting Officer Representative.

(2) The specific procedures for USACE TSC review of PCC mix designs and HMA job mix formulas for USACE constructed airfield pavement projects are attached.

(3) This requirement was developed through reviews of various design and construction problems with USACE-managed airfield pavement projects that reveal that one common cause of design and construction problems on airfield pavement projects is the inadequate review of contractors' proposed mix designs and job mix formulas.

6. To implement the requirements for USACE TSC review, the Project Management Plan (PMP) for qualified projects shall reflect the above identified requirements and provide appropriate effort and funding. Project managers should contact the USACE TSC during the development of the PMP. All USACE TSC review efforts and on-site support will be project funded and reimbursed by the design/construction district, as applicable.

7. Technical issues are to be directed to Terry Sherman, USACE Transportation Systems Center, 402-995-2399, email: terry.w.sherman@usace.army.mil. HQUSACE point of contact for this ECB is Paul Dicker, CECW-CE, 202-761-0995, email: paul.f.dicker@usace.army.mil.

Encl.

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ATTACHMENT 1

Procedures for USACE TSC Review of PCC Mix Designs and HMA Job-Mix-Formulas (JMFs) for USACE Constructed Airfield Pavement Projects

Reviews: Reviews will be performed by the USACE Transportation Systems Center (TSC).

Cost: Each Portland Cement Concrete (PCC) Mix Design or Hot Mix Asphalt (HMA) JMF review will cost approximately \$1,500. Re-submittal reviews will cost about \$100 - \$500.

Schedule: Plan on three weeks for each review. Reviews can usually be completed within 5 days, pending workload and will be completed ASAP. Expedited reviews will be considered on a case-by-case basis. Please plan ahead.

Reviewers: Primary reviewers of mix designs and mix formulas will be:

John Hawkins, 402-995- 2409, john.c.hawkins@usace.army.mil

Gene Gutierrez, 402-850-7081, gene.gutierrez@usace.army.mil

Procedures:

- 1) Prior to forwarding the submittal data for review by the USACE TSC staff, district construction staff need to be sure that the submittal includes all the requirements of UFGS 32 13 11, Paragraph 1.4 Submittals, SD-05 Design Data, for PCC mix designs and/or all of the requirements of UFGS 32 12 15.13, Paragraph 2.3.1 JMF Requirements, including all reports of aggregate quality testing and asphalt cement certification testing for HMA JMFs.
- 2) Send an e-mail with the complete submittal and the appropriate contract specifications with addendums (Spec 32 13 11 and/or 32 12 15.13) in electronic (pdf) format to the primary reviewers above, with an info copy to Terry Sherman, USACE TSC, 402-995-2399, terry.w.sherman@usace.army.mil .
- 3) The USACE TSC will electronically confirm the receipt of submittal documents from district construction managers and provide an expected completion date (normally 5 days).
- 4) Reviews will be completed and comments/ recommendations will be provided via e-mail to the requestor and any other person cc'd on the original request, plus a copy to Dr. Craig Rutland, HQ AFCEC, craig.rutland.1@us.af.mil for Air Force projects, and a copy to Ali Achmar, HQ IMCOM, ali.a.achmar.civ@mail.mil for Army project.
- 5) Funding will be provided to the USACE TSC by the requesting USACE district activity via a cross charging labor (CCL) code. Funding source will be the requesting district's S&A account.