

**PROFESSIONAL PAPERS OF THE CORPS OF
ENGINEERS, U. S. ARMY, NO. 28. REPORT
OF BOARD OF ENGINEER OFFICERS
ON TESTING HYDRAULIC CEMENTS WITH
SPECIFICATIONS FOR THE SEVERAL CLASSES
USED BY THE ENGINEER DEPARTMENT**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649251360

Professional papers of the corps of engineers, U. S. Army, No. 28. Report of Board of Engineer Officers on Testing Hydraulic Cements with specifications for the several classes used by the engineer department by Various

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Cover @ 2017

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VARIOUS

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REPORT

OF

BOARD OF ENGINEER OFFICERS

ON

TESTING HYDRAULIC CEMENTS,

WITH

SPECIFICATIONS FOR THE SEVERAL CLASSES

USED BY

THE ENGINEER DEPARTMENT.

MAJOR WILLIAM L. MARSHALL,

MAJOR SMITH S. LEACH,

CAPTAIN SPENCER CONBY,

CORPS OF ENGINEERS, U. S. ARMY, MEMBERS OF THE BOARD.

WASHINGTON:

GOVERNMENT PRINTING OFFICE

1901.

WAR DEPARTMENT,
Document No. 144.
Office of the Chief of Engineers.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY.

Washington, June 11, 1901.

SIR: I have the honor to transmit herewith a report of a Board of Officers, convened under your authority by Special Orders, No. 56, Headquarters Corps of Engineers, 1900, to consider and report upon the general subject of manipulating and testing hydraulic cements used in the public works carried on under the supervision of this office.

The Board has given the subject careful study, and its report, which is accompanied by a proposed draft of specifications, is recommended for approval with a view of securing uniform practice as far as possible throughout the Engineer Department.

As the report contains much information that is valuable, not only to the Corps of Engineers, but also to the engineering profession at large, I further recommend that 1,000 copies be printed at the Government Printing Office and furnished for the use of this office on the customary requisition.

Very respectfully, your obedient servant,

G. L. GILLESPIE,

Brig. Gen., Chief of Engineers,

U. S. Army.

HON. ELIHU ROOT,
Secretary of War.

[First indorsement.]

Approved as within recommended.

By order of the Secretary of War:

JOHN C. SCOFIELD,

Chief Clerk.

WAR DEPARTMENT, *June 19, 1901.*

LETTER OF INSTRUCTIONS.

HEADQUARTERS, CORPS OF ENGINEERS,
UNITED STATES ARMY,

Washington, December 17, 1900.

MAJOR: In view of the lack of uniformity that exists in the specifications for cements submitted to this office for approval, it is considered desirable that a uniform set of specifications for each class of cement should be prescribed for use in works under the supervision of this office.

The Board will therefore consider the general subject of testing cements and make such recommendations on that subject as will be applicable under the conditions prevailing on the works carried on under the supervision of officers of the Corps of Engineers.

The Board in its report will follow in a general way the report of the Board on Electrical Installations, recently submitted, and, after its remarks and recommendations, will include as appendixes to the report sets of standard specifications for both Rosendale and American Portland cements which shall embrace all the requirements necessary to secure a suitable cement.

It is not expected that the Board will introduce unnecessary refinements in the tests required, but will bear in mind the actual conditions that obtain in the Engineer Department. It is desired, however, that the report be complete and authoritative along the line suggested.

The subject of slag cements has recently been reported on by a Board of Engineer Officers, but without any recommendations as to the conditions under which they may safely be used. The Board is therefore requested to consider this subject, and if in its judgment its use is considered admissible, it is requested to state such conditions and to prepare a set of standard specifications for slag cements.

In view of the possible economy resulting to the Government from its grinding together cement and silica sand, it is requested that this subject be also given consideration by the Board.

The Board is authorized to call upon the District engineer officers for such records of tests or such other information as may be available.

Very respectfully,

JOHN M. WILSON,
Brig. Gen., Chief of Engineers,
U. S. Army.

Maj. W. L. MARSHALL,
Corps of Engineers,
President of Board on Specifications for Cements,
New York City.

REPORT.

UNITED STATES ENGINEER OFFICE,

New York City, June 6, 1901.

GENERAL: The Board of Officers of the Corps of Engineers, constituted by Special Orders, No. 56, Headquarters Corps of Engineers, December 17, 1900, has the honor to submit the following report:

The Board convened at the Army Building, in New York City, upon the call of the senior member, at 10 a. m., January 8, 1901, all the members of the Board being present. At sessions held on that and the following day the Board arrived at a substantial agreement upon the leading points of the subject referred to it, and upon the general wording of the specifications for the several classes of cement, and then adjourned to meet at the call of the senior member for the completion of the report.

Under the authority of Special Orders, No. 3, Headquarters Corps of Engineers, January 12, 1901, the Board reconvened in New York City, at the call of the senior member, at 10 a. m., March 28, 1901. During a session of that day the views of the several members, presented in writing, were carefully considered, and the Board agreed upon a report and specifications. On April 2 these were sent to the Chief of Engineers, but were returned to the Board with the request that it consider the additional subjects of sampling the cement, amount of testing desirable depending on the importance of the work and the size of the order, and the records that should be kept.

At the call of the senior member, and by authority of Special Orders, No. 20, Headquarters Corps of Engineers, May 15, 1901, the Board reassembled in New York City at 10 a. m., May 29, and formulated its report upon the additional subjects referred to it, the members having previously communi-