SI International System of Units

An ACI Standard

Tightness Testing of Environmental Engineering Concrete Structures—Specification

Reported by ACI Committee 350

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Tightness Testing of Environmental Engineering Concrete Structures—Specification (SI Units)

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American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331
Phone: +1.248.848.3700
Fax: +1.248.848.3701

www.concrete.org

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Reported by ACI Committee 350

M. Reza Kianoush, Chair

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Lawrence G. Mrazek
Javeed Munshi
Terry Patzias
Andrew R. Philip
Narayan M. Prachand
David M. Rogowsky

*Subcommittee members who produced this Specification.
†Deceased.

The committee would like to thank M. Mitchell, D. Poole, P. Hedli, and J. Zanotti for their contributions to this Specification.

These test methods give procedures and criteria for tightness testing of environmental engineering concrete structures. They are applicable to liquid and gas containment structures constructed with concrete or a combination of concrete and other materials. This Specification includes hydrostatic, surcharged hydrostatic, and pneumatic tests.

These test methods may involve hazardous materials, operations, and equipment. This document does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this Specification to establish appropriate safety and health practices and determine the applicability of regulatory limitations before use.

Keywords: containment structures; hydrostatic; leakage; pneumatic; reservoirs; tests; tightness; tightness criteria.

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SECTION 1—GENERAL REQUIREMENTS

1.1—Scope

1.1.1 *Work specified*—This Specification covers tightness testing of liquid and gaseous environmental containment structures that are designed to resist liquid or gaseous loads and to meet the provisions of ACI 350. Unless otherwise specified, test containment structures after the structure is complete and concrete has attained its specified compressive strength. Provisions of this Specification govern except where other provisions are specified in Contract Documents.

1.1.1.1 Tests specified herein include:

(a) Hydrostatic tightness test for open or covered containment structures

(b) Surcharged hydrostatic tightness test for closed containment structures

(c) Pneumatic tightness test for closed containment structures

(d) Combination hydrostatic-pneumatic tightness test for closed containment structures

Do not substitute one type of test for another type of test without acceptance of the Architect/Engineer.

1.1.1.2 Unless otherwise specified, tightness testing procedures and requirements contained herein are applicable to reservoirs, basins, tanks, and open liquid transmission structures such as cast-in-place channels and conduits.

1.1.1.3 Unless otherwise specified, consider each cell of multi-cell containment structures as a single containment structure, and tested individually.

1.1.1.4 Unless otherwise specified, preparatory items indicated in 2.3.1 are required but waiving such items does not change the test acceptance criteria.

1.1.1.5 If specified, hydrostatically tightness test concrete paved structures, channels, and impoundments.

1.1.2 This Specification is incorporated by Contract Documents and provides requirements for the Contractor.

1.1.3 This Specification governs for construction within its scope, except project-specific Contract Documents govern if there is a conflict.

1.1.4 This Specification governs if there is a conflict with referenced material and testing standards.

1.1.5 Contractor is permitted to submit written alternatives to any provision in this Specification for consideration.

1.1.6 Unless otherwise specified, do not use this Specification in conjunction with ACI 350.5M.

1.1.7 Ignore provisions of this Specification that are not applicable to the Work.

1.1.8 Values in this Specification are stated in SI units. A companion specification in inch-pound units is available.

1.1.9 The Notes to Specifier are not part of this Specification.

1.1.10 *Work not specified*—These provisions are not intended for structures such as hazardous material primary containment structures, cryogenic storage structures, high-pressure gas tanks, or miscellaneous precast concrete struc-

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