

COOLING TECHNOLOGY INSTITUTE

Standard for Publication of Custom Cooling Tower Thermal Performance Test Results



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This guideline document summarizes the best current state of knowledge regarding the specific subject. This document represents a consensus of those individual members who have reviewed this document, its scope and provisions. It is intended to aid all users or potential users of cooling towers.

Approved by the CTI Executive Board.



This document has been reviewed and approved as part of CTI's Five Year Review Cycle. This document is again subject to review in 2018.

Approved by the
CTI Executive Board

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1.0 BACKGROUND

Every year the CTI Multi-Agency Testing Chair provides a review of the previous year's custom tower test results. Such reviews have shown that more than half of the custom cooling tower acceptance tests are at less than 100% thermal capacity. CTI has developed this Standard to encourage custom tower capacity equal to or greater than 100%. It is CTI's intent to foster and promote the benefits of thermal performance acceptance testing of water cooling towers to the owner/operator of the equipment. It is not a certification program like that governed by CTI STD-201. The success of this program depends on a high percentage of custom cooling towers being field tested for thermal performance and the results published in accordance with this Standard. CTI will take action under the provisions of this Standard against participating manufacturers who imply that participation in this program is certification of the performance of their products, or against participating manufacturers who otherwise discourage testing of their products.

2.0 PURPOSE

This Standard sets forth a voluntary program wherein CTI will publish measurements of the thermal performance test history of participating tower manufacturers (PM) by utilizing field-testing of custom cooling towers within its licensed thermal testing program.

3.0 DEFINITIONS

- 3.1 **LTA:** CTI-Licensed Thermal Testing Agency.
- 3.2 **Custom Cooling Towers.** Custom cooling towers include all cooling towers for which the rating is established on an individual basis per the plans and specification of the project. This program shall not be applied to models or lines that could be covered by STD-201, whether or not ratings are published for those models or lines, and whether or not such lines are certified per STD-201.
- 3.3 **Lines.** The term "Line," as used in this Standard, applies to a manufacturers grouping of cooling tower models, all of which are of consistent design in that they employ the same design configuration (induced draft crossflow, forced draft counterflow, etc.), and the same fan type (propeller or centrifugal), plus any other optional design or application considerations (such as range of capacities) as the manufacturer may employ, and for which the manufacturer issues a unique catalog or other sales literature providing

a physical description and range of dimensions for all models.

- 3.4 **New Cooling Towers.** New custom cooling towers shall include all cooling towers erected on a new or existing basin, with a new fill system, a new water distribution system, a new drift eliminator system, new fans and mechanical equipment, within a new structure.
- 3.5 **Cooling Tower Repacked/Rebuilt with Thermal Guarantee** – A custom cooling tower rebuilt within an existing basin and structure, which includes a thermal performance guarantee, and is refurbished with a new fill system and may include; a new water distribution system, a new drift eliminator system, and new fans and mechanical equipment. The rebuilt tower may include reuse of some existing components from the original tower and structural repair or extension might also be included in the scope of work and guarantee.
- 3.6 **Participating Manufacturer (PM).** A cooling tower manufacturing company that has applied for participation and agrees to comply with all provisions of the Program as set forth in this Standard.
- 3.7 **Custom Tower Program Committee.** The Custom Tower Committee shall be comprised of the CTI Administrator (non-voting), LTAs, PMs in this program, and three to five owner/operators of cooling towers who are CTI Members in good standing.
- 3.7.1 A chair and vice chair shall be elected by the committee for a two year term.
- 3.8 **Reporting Period.** Data for each PM transmitted from LTAs to the CTI's designated Certified Public Accountant (CPA) shall be on an annual basis, for the year between November 1, and October 31.

4.0 SCOPE

- 4.1 This Standard applies to New, Custom Cooling Towers and Repacked/Rebuilt towers that have a Thermal Guarantee.
- 4.2 The Program shall be administered by the CTI Administrator and CTI's CPA as prescribed in this Standard.
- 4.3 Compliance with this Standard requires that all custom cooling towers offered by the PM be included in the program. Models or lines that could be covered by CTI STD-201 are by definition not considered to be custom towers, and are to be **excluded** from reporting.

4.3.1 PM's shall submit to the CTI Administrator by October 31 of each year a list of tower lines and corresponding model numbers that are to be excluded from this program. This list of tower lines shall be limited to towers suitable for inclusion in STD-201 whether or not they are currently certified per STD-201 and whether or not the manufacturer is currently a PM in STD-201.

4.3.2 The LTAs will each receive a copy of the list of non-custom lines and models for each PM.

4.3.3 PM's shall provide updated lists to the CTI Administrator per Paragraph 4.3.1 within 20 working days as changes are made to their product portfolio. These shall be transmitted as soon as practical to the LTAs.

- 4.4 The LTAs shall base the reporting of results for custom towers on any tower not on the current non-custom tower exclusion list in the possession of, or provided by, the CTI Administrator at the time of testing.

5.0 OPERATION OF PROGRAM

- 5.1 A manufacturer requesting participation in this program shall submit an application to the CTI Administrator. The application shall include a listing of the non-custom lines and models (per STD-201) to be excluded from the custom tower program as of the date of application.

5.1.1 The submission of a written application to participate in this program is the manufacturer's consent to have its future results reported to the CPA by the LTAs. Since no information that would reveal the owner for any individual test is reported by the test agency to the CPA, or by the CPA to CTI for publication, the confidentiality requirements in the CTI License Agreement with LTAs are satisfied.

5.1.2 The CTI Administrator shall transmit the list of non-custom lines and models to the LTAs and direct them to begin to report the custom tower test results for the Applicant per Section 5.3. The CTI Administrator will inform the CPA that reports are pending for the new PM.

5.1.3 The CPA shall then begin to accumulate results per Section 5.4 for the new PM.

5.1.4 The CTI Administrator shall transmit a formal letter of acceptance in the format of Appendix A, to the applicant, the LTAs, to the other PM's, and to the CPA. A copy of this letter shall be maintained on file by each of the above parties.

5.1.4.1 Upon notification of Acceptance in the Program, the PM's shall begin immediately to incorporate a statement in

the form of Appendix C of this Standard as an integral part of all proposals for custom cooling towers.

5.4.1.2 The PM shall also actively promote the specification and actual conducting of a thermal acceptance test by a LTA on all new Custom towers.

5.1.5 PM's may withdraw from the program at any time by submitting a letter to the CTI Administrator requesting that their participation be terminated. The CTI Administrator shall publish notification of withdrawal as specified in Sections 8.7.3 and 8.7.4. The annual program administrative fee is not refundable upon withdrawal.

5.1.5.1 If a PM withdraws, PM may not re-apply within 3 years of the withdrawal. The intent of this provision is to prevent withdrawal to avoid publication of a poor result.

5.1.5.2 If a PM withdraws and subsequently re-applies, then the provisions for a new application shall be followed.

- 5.2 All tests reported as prescribed by this Standard shall be conducted by LTAs. Only new tower and tower repack/rebuild acceptance tests shall be reported.

- 5.3 The result of tower tests for each PM shall be reported by the LTAs to the CPA in the format of Appendix B no later than 30 days after the completion of the test. Capabilities shall be categorized into one of two Flow Bands defined as follows:

5.3.1 Flow Band I: 0 to 13,627 m³/hr (0 to 60,000 US gpm)

5.3.2 Flow Band II: 13,627 and greater m³/hr (60,000 and greater US gpm)

5.3.3 It shall be permissible for a PM to include test results for only one flow band if that PM's number of tests in the other flow band is not sufficient to meet the minimum criteria specified below in paragraph 5.5.

5.3.4 The reports shall be transmitted by the LTAs to the CPA in a sealed envelope marked "COOLING TECHNOLOGY INSTITUTE CUSTOM COOLING TOWER THERMAL PERFORMANCE RESULTS". The CPA shall maintain confidentiality of individual test results. A duplicate copy of each report shall also be transmitted to the official test representative of the PM whose test is being reported.

- 5.4 After notification under Paragraph 5.1.3, the CPA will tabulate and record, (with no prior