

COOLING TECHNOLOGY INSTITUTE

FIELD ERECTED COOLING TOWER SPECIFICATION



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STD-203(19)

This document was developed using the consensus procedure outlined in the CTI Operating Procedure 304
and has been approved for publication by the CTI Board of Directors

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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 revised and approved as part of CTI's Five Year review Cycle. This document is again subject to review in 2024.

Approved by the
CTI Executive Board

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INDUSTRIAL COOLING TOWER STANDARD

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INDUSTRIAL COOLING TOWER STANDARD

1. SCOPE

This standard covers the design, fabrication and inspection of field-erected crossflow and counterflow mechanical draft cooling towers. It is not intended to be an all-inclusive prescriptive document, but to serve as a basis in specifying, purchasing, constructing, operating, and maintaining large, field-erected towers. Purchasers' individual specifications may exceed or differ from the requirements herein, but this Standard shall serve as a minimum set of criteria in absence of anything to the contrary.

2. STANDARDS AND SPECIFICATIONS

For any field-erected tower, all components and materials shall be in accordance with requirements of existing Cooling Technology Institute standards listed below. The purchaser shall specify additional standards such as local rules or regulations, noise, discharge requirements, etc. In addition to capital cost, proposals should be evaluated using factors similar to those presented in Attachment 1 and included with Purchaser's specifications. The purchaser information shown on form –PTG-188, SF/FE shall be provided with the inquiry.

STD-103	Design of Cooling Towers with Redwood Lumber
ATC-105	Acceptance Test Code for Water Cooling Towers
STD-111	Gear Speed Reducers
STD-112	Pressure Preservative Treatment of Dimensional Lumber
STD-114	Design of Cooling Towers with Douglas Fir Lumber
PTG-118	Inquiry and Bid Form
STD-119	Timber Connection Specification
ESG-121	Construction Safety and Health Guidelines
ESG-123	Recommended Guidelines for Concrete Restoration and Repairs to Natural and Mechanical Draft Cooling Towers
STD-124	FRP Fan Stack Material Standard
STD-131	Fiberglass Reinforced Plastic Panels for Application on Industrial Water-Cooling Towers
STD-134	Plywood for use in Cooling Towers
STD-136	Thermoplastic Materials Used for Film Fill, Splash Fill, Louvers and Drift Eliminators
STD-137	Fiberglass Pultruded Structural Products for Use in Cooling Towers

ESG-144	CTI Fastener Material Guidelines
ESG-152	Structural Design of FRP Components
ESG-153	Recommended Guidelines for Portland Cement Concrete
STD-154	Cooling Tower Filament-Wound Fiberglass Piping System
ESG-157	Wood to Fiberglass Replacement/Repair
STD-163	Standard for Vibration Limits in Water Cooling Towers

CTI Manual Chapters 1-13

3. PROPOSAL INFORMATION

A thorough proposal furnished by a field erected cooling tower supplier shall contain the following technical information:

1. At a minimum, three separate performance curve sheets, one each for 90%, 100%, and 110% design water flowrate, showing cold water temperatures versus inlet air wet bulb temperature. Curves shall cover cooling ranges corresponding to 80%, 100% and 120% of design heat duty, at wet bulb temperatures ranging from 15° F below to 15° F above the specified design inlet wet bulb temperature. Performance curves shall be based on constant fan pitch or alternatively a tower characteristic curve showing KAV/L versus L/G.
2. A completed proposal data form containing all of the information depicted in PTG-118, and additional pertinent information including the following:
 - a. Air temperature leaving tower.
 - b. Grades of lumber to be used, FRP design data, or concrete design information for various tower parts.
 - c. Detailed description of deicing facilities, if required.
 - d. Curves for proposed fan; include fan efficiency (static and total).
 - e. Recommend spare parts.
3. A statement clearly delineating any exceptions to any referenced standards and/or Purchaser's specifications.

4. OPERATING AND MAINTENANCE MANUALS

All manuals shall be written for the specific equipment being furnished, and contain information as follows:

Mechanical data on fan, hub, coupling/shaft and fan drivers.

Instructions for installation, operation and maintenance of the tower and mechanical equipment.

Instructions for fan hub and blade assembly.