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# CTI STD-201RS Thermal Certification for Cooling System Heat Rejection Equipment Part 2

Mike Womack  
Cooling Tower Institute  
*Keynote Speaker*

The recording and slides of this webinar will be made available to attendees via email later today.

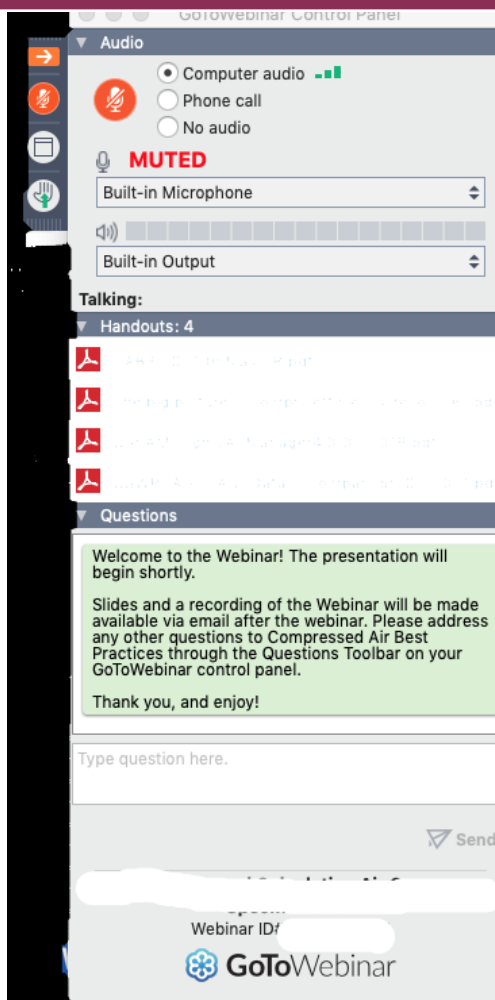
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# Q&A Format



- Panelists will answer your questions during the Q&A session at the end of the Webinar.

- Please post your questions in the Questions Window in your GoToWebinar interface.

- Direct all questions to Chiller & Cooling Best Practices® Magazine



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# Handouts

**CTI** Answers to Frequently Asked Questions for CTI STD-201 Thermal Certification of Evaporative and Air-Cooled Heat Rejection Equipment

Contents

- What is CTI STD-201? ..... 3
- To what equipment does CTI STD-201 apply? ..... 3
- What is the CTI STD-201 Thermal Certification Program? ..... 3
- What is required for initial Program participation? ..... 3
- What data is a manufacturer required to submit to the Thermal Certification Administrator? ..... 4
- What data is a manufacturer required to provide to the public? ..... 4
- What is required for the initial qualification and annual reverification tests? ..... 5
- What are the program costs? ..... 5
- What is the Thermal Certification Program Committee and how do I join? ..... 5
- How is equipment certified by the CTI STD-201 Thermal Certification Program? ..... 6
- How does a manufacturer certify multiple types of equipment? ..... 6
- What are CTI's product line naming requirements? ..... 6
- Does CTI STD-201 cover sound, drift emissions or construction quality? ..... 6
- Can a manufacturer produce a certified product at multiple locations? ..... 7
- How should a manufacturer handle private labeling of a certified product line? ..... 7
- Can process fluids other than water be allowed on a certified product line (Closed Circuit Coolers/ Evaporative Condensers)? ..... 7
- Are alternate materials of construction allowed on a certified product line? ..... 7
- Are alternate impacting accessories allowed on a certified product line? ..... 8
- Where can I find a manufacturer's list of certified models by product line? ..... 8
- How can a customer confirm that a manufacturer's selection is certified? ..... 8
- How often must equipment be tested to remain certified? ..... 8
- Does certification ever expire? ..... 8
- What are the CTI STD-201 limits of thermal certification? ..... 9
- Why were those design conditions selected? ..... 9
- Why does STD-201 allow a 5% test tolerance? ..... 10
- If a customer's design conditions are outside the CTI STD-201 limits, is the equipment still certified? ..... 10
- How is a potential CTI violation to be reported? ..... 11

Rev. 4, 01-July, 2022 3



### ACF Series Induced Draft Counter Flow

- 86 single cell models ranging from 97 to 1043 nominal tons
- Over 250 multiple cell configurations
- CTI STD-201 certified
- ASHRAE 90.1 compliant
- Ideal for both new and replacement projects
- Flexible arrangements and configurations
- Wide range of options and accessories
- G-236 Galvanized steel construction
- Stainless steel 304, 316, or 316L options
- 3 Year mechanical / 1 year total product warranty
- Extended parts & labor warranties available



Giving you the ACTvantage you deserve!

### ACX Series Induced Draft Cross Flow

- 69 single cell models ranging from 102 to 1074 nominal tons
- Multiple cell configurations for any project size
- CTI STD-201 certified
- ASHRAE 90.1 compliant
- Integral drift eliminators and inlet louvers
- Wide range of options and accessories
- G-236 Galvanized construction
- Stainless steel 304, 316, 316L options
- 5 Year mechanical / 1 year total product warranty
- Extended parts & labor warranties available



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## Facility Operated Utilities

Rep Profile: Houston's S&S HVAC Equipment

- 20 Defining the Purity of Nitrogen Gas
- 28 Cooling Innovations at AHR EXPO
- 34 Compressed Air Monitoring Improves Processes
- 38 Cooling Technology Institute Conference

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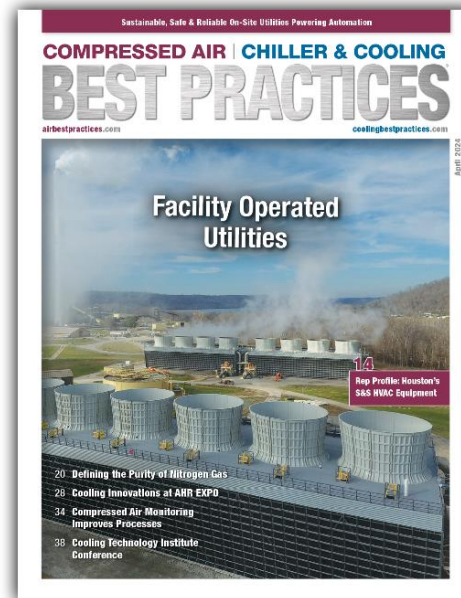
Questions? Reach out to me directly at  
[Kimberly@airbestpractices.com](mailto:Kimberly@airbestpractices.com)



# CTI STD-201RS Thermal Certification for Cooling System Heat Rejection Equipment Part 2

Introduction

Chiller & Cooling Best Practices® Magazine



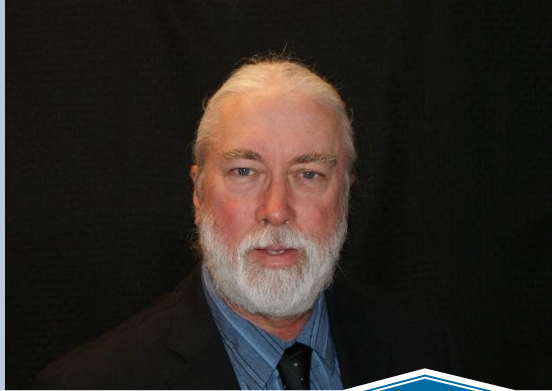
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# About the Speaker



**Mike Womack**

Cooling Technology Institute

- Thermal Certification Administrator, Clean Air Engineering, Inc. (under contract with the Cooling Technology Institute) 2014-present
- Licensed Professional Engineer, Illinois
- 37+ years Experience in Plant Performance Testing, Machinery Maintenance and Reliability and Project Management



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**CTI**  
**CERTIFIED**



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## STD-201 THERMAL CERTIFICATION PURPOSE

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**“This standard sets forth a program whereby the Cooling Technology Institute will certify that all models of a line of evaporative heat rejection equipment, or dry fluid coolers, offered for sale by a specific manufacturer will perform thermally in accordance with the manufacturer's published ratings. . . “**

## STD-201 THERMAL CERTIFICATION PURPOSE



***By the purchase of a CTI Certified model, the Owner/Operator has assurance that the tower will perform as specified\* in the publicly available data***

\*Performance as specified when the circulating water temperature is within acceptable limits and the air supply is ample and unobstructed.

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## For More Information...

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**CTI Home Page:**

<https://www.cti.org/>

**Thermal Certification Description:**

<https://www.cti.org/cti-certified-towers>

**Online Certification Directory:**

<https://www.cti.org/certification-directory>

# Online Certification Directory Introduction and FAQ



<https://www.cti.org/cti-certified-towers>

COOLING TECHNOLOGY INSTITUTE

CTI MARKETPLACE PAY ONLINE MEMBER LOGIN

About Testing CTI Certification Membership Resources

UPCOMING EVENTS BECOMING A MEMBER

## CTI Certified Towers

HOME > CTI CERTIFICATION > CTI CERTIFIED TOWERS

### CTI Standard 201

Public Notifications FAQ Annual Report

CTI STD-201 sets forth a program whereby the Cooling Technology Institute will certify that all models of a line of Evaporative Heat Rejection Equipment offered for sale by a specific Manufacturer will perform thermally in accordance with the Manufacturer's published ratings.

By purchasing a CTI Certified model, the owner/operator has the assurance that the tower will perform as specified. Either that model or one within its model line will have been thoroughly tested by a CTI-licensed testing agency and found to perform as claimed by the manufacturer.

Above is a directory of cooling tower models currently certified under STD-201. They are part of product lines offered by far-sighted cooling tower companies that are committed to the manufacture and installation of full-performance towers. In competition with each other, these manufacturers benefit from knowing that they each achieve their published performance capability. They are therefore free to distinguish themselves through design excellence and concern for the owner/operator's operational safety and convenience.

Those Manufacturers who have not yet chosen to certify their product lines are invited to do so at the earliest opportunity.

# CTI Certification Directory Publication



<https://www.cti.org/certification-directory>



Alphabetical Company Listing Below



# CTI Certification Directory Publication



## Current Thermally Certified\*\* Product Lines (STD-201):

- Certified Model Listing
- Informational Brochure (listing basic dimensions of models, nominal capacity and power consumption, etc.) or website link with required data
- Required Selection Data (defines capacity at stated thermal conditions)

\*\*Withdrawn (i.e. no longer valid) Certifications are posted with a copy of the applicable withdrawal notice for a period of one year after withdrawal date.

# STD-201 CERTIFICATION PROCESS



- Application Submitted to Thermal Certification Administrator
- Technical Review by Thermal Certification Administrator
- Selection of Tower Model for Initial Qualification Test
- Initial Qualification Test by Certification Test Agency
- Issue Approval Letter With Validation Number
- Annual Reverification Tests for Follow Up

# STD-201 CERTIFICATION SCOPE (Evaporative Product Lines)



- Entering wet bulb temperature  
10°C to 32.2°C (50°F to 90°F)
- Cooling range > 2.2°C (4°F)
- Cooling approach > 2.8°C (5°F)
- Process fluid temperature < 51.7°C (125°F)
- Barometric pressure  
Open Circuit: 77.8 kPa to 105.0 kPa (23" Hg to 31" Hg)  
Closed Circuit, and Evap. Condensers: 91.4 to 105.0 kPa (27" to 31" Hg)



## STD-201 CERTIFICATION SCOPE (Dry Cooler Product Lines)



- Entering dry bulb temperature  
+5°C to +50°C (41°F to 122°F)
- Cooling range > 2.2°C (4°F)
- Cooling approach > 2.8°C (5°F)
- Process fluid temperature < 100°C (212°F)
- Barometric pressure:  
91.4 kPa to 105.0 kPa (27" Hg to 31" Hg)

## Significance of Certification Limits



- The limits of certification, as defined in STD-201, were developed to encompass the “test limits” as defined in the CTI test codes.
- Improves the accuracy and reliability of the required tests which are conducted to prove the accuracy of the certified model ratings and the thermal selection data.
- **If the design conditions for a project are outside of the certification limits, then manufacturers *can not* supply a model with CTI certified performance.**

## Significance of Certification Limits



### If the design conditions for a project are outside of the certification limits...

- A manufacturer may provide the calculated thermal performance for the quoted models, but the performance shall not be labeled as *CTI Certified*.
- Out-of-limits capacity estimates are not readily confirmed using the published data for the product line (i.e. Certification Directory website).

Takeaway: Consider having the bidders for your project quote at least one set of thermal conditions that are within the CTI Certification Limits. In that manner you can check and compare the CTI Certified capacity of each quoted model.



MANUFACTURER'S PUBLISHED THERMAL PERFORMANCE IS CERTIFIED BY THE COOLING TECHNOLOGY INSTITUTE UNDER THE PROVISIONS OF STD-201 **(21)**

Certification Validation Number



## Additional Certification Information



- **CTI Web Site**  
<https://www.cti.org/>
- **CTI Journal**
- **CTI Office in Houston, Texas USA**
- **CTI Certification Administrator**  
**Michael Womack**  
**C/O Clean Air Engineering**  
**Email: [tcas@cticertification.org](mailto:tcas@cticertification.org)**  
**Phone: 217-347-0842 (office)**  
**217-690-9321 (mobile)**

# About the Speaker



**Jay Poggi**  
American Cooling Tower

- Business Development Manager, American Cooling Tower
- 40 years of experience in the Mechanical Field
- Worked in Construction, Applied, and Service roles
- Extensive experience in Project Management for large projects, including Central Plant and HVAC retrofits



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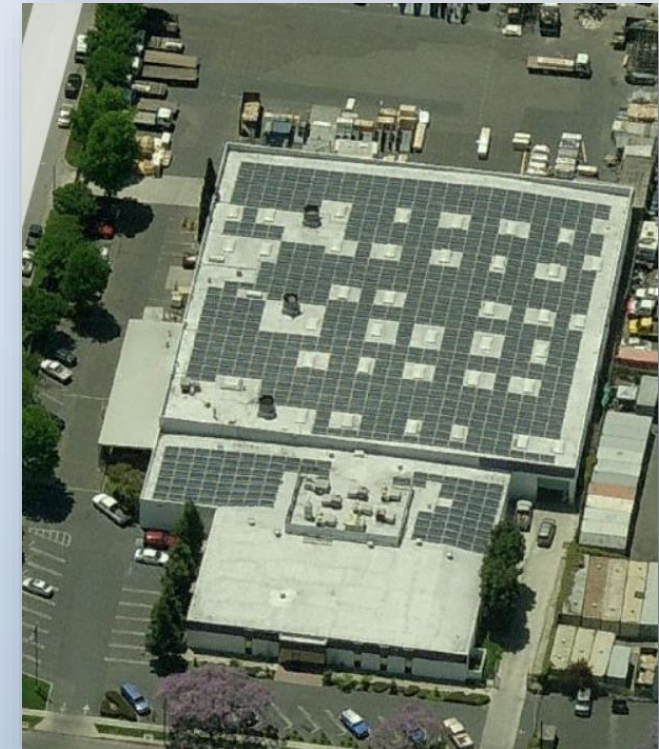
# CTI 201RS PARTICIPATION

How 201RS Certification Program  
Impacted Our Business



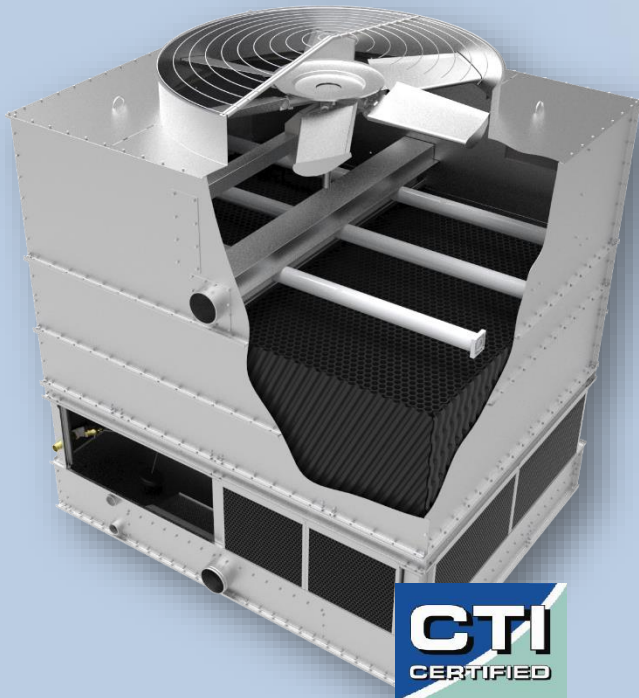
## CTI 201RS COMPANY TIMELINE

- New Tower Division Overview
  - 2005 – First Steel Tower Manufactured (No Certification)
  - 2008 – First CTI Certified 201RS Line (ACF Series)
  - 2010 – Second CTI Certified 201RS Line (ACX Series)
  - 2023 – R&D testing completed for ACX Tower Line Revision
  - 2024 – ACX Tower Revision Project
  - 2024 – Additional R&D testing for new product line
  - 2024/25 – ACF Revision / New Line Application





## CTI 201RS Certified Lines



### ← **ACF SERIES**

Counter Flow Induced Draft

### **ACX Series** →

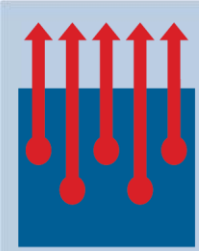
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ACT'S CTI CERTIFICATION DIRECTORY

LINK:

<https://www.cti.org/certification-directory/directory+companies/american-cooling-tower--inc-act>



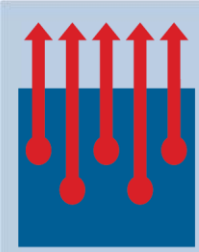


## How CTI 201RS Program Changed American Cooling Tower

- Sizing Programs VS Real Data
  - Testing
  - Component interaction
  - Nuances of designs
- Leads to:
  - Quality Control Programs – Continuous Improvement
  - Smarter processes & Better practices
    - *MAKES US BETTER!*
- Changed our business model & our culture
- Fellow participants push each other to BE BETTER.

## How CTI 201RS Program Changed Our Suppliers

- Creates opportunity for collaboration
- Real test data and how their components perform outside of individual component test labs.
- Strengthens our partnerships – Supplier Council
  - Let the experts in their field of specialty be a part of the process.
- Leads to new products which perform better and in turn we can then incorporate into our designs to make better products for owners & operators.



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**CTI201RS**  
*Makes us Better!*

## ACF Series Line



## ACX Series Line



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# CTI STD-201RS Thermal Certification for Cooling System Heat Rejection Equipment Part 2

## Q&A

Please submit any questions through the Question Window on your GoToWebinar interface, directing them to Chiller & Cooling Best Practices Magazine. Our panelists will do their best to address your questions and will follow up with you on anything that goes unanswered during this session.

**Thank you for attending!**



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**Tom Taranto**

Data Power Services  
*Keynote Speaker*

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