WOW! That is what I must say about the CTI Annual Conference held in Houston this past February. We had over 460 attendees from 25 countries and our largest amount of table top exhibits. This is a testament to the great work of our administrative staff, led by Virginia Manser and our committee chairs. We also must thank all the member companies that provide both their support financially and with the voluntary hours put in by their personnel. CTI prides itself on its most valuable asset, all the folks that so willingly volunteer their time to make this organization a success. In this spirit, I would like to thank the outgoing Board of Directors for their three-year term of service: Narendra Gosain, Walter P Moore; Brandon Rees, Cooling Tower Depot; and Helene Troncin from EDF. We welcome Tom Kline, Structural Group; Chris Lazenby, Southern Company Services, Inc; and Frank Morrison, BAC.

This past meeting included the usual format for “Ask the Expert?”, a session of lively interchange between attendees, and the “Owner Operator Session” lunch which I hear (since I cannot attend) was a success, where our User group can freely share ideas and concerns. With CTI’s flexible charm, we did not have a formal Water Treating Panel, but allowed for more paper presentations. Ken Hennon, Clean Air Engineering presented the much-anticipated results of the Pitot Tube research study. The Education Seminar was especially well received with a compelling session about Legionnaires’ disease. Our summer workshops keep up the momentum of the annual conferences with the 2018 CTI Summer Workshop being held at La Cantera, outside San Antonio, TX July 15-18. Our three standing technical committees will be busy modifying standards and replying to ad hoc commenters. What is mentioned below is just a few of their projects. Engineering Standards and Maintenance (ES&M) has five task groups working on multiple documents including thermoplastic fill, FRP, and establishing a materials certification program based on STD-137. Performance and Technology (P&T) is busy modifying acceptance test codes for closed circuit cooling towers, ATC-128, sound measurement and working on a standard for sound certification. P&T will be working with the Water Treating Committee to further develop drift test codes. Water Treating is anticipating finalizing a best practice guideline for cooling water systems as well as completing documents on their monitoring series and nonoxidizing biocides.

As I begin my term as President, I invite you to join the fun at La Cantera, and participate in and contribute to the efforts of our committees. I look forward to working with the Board Members and whole CTI community in continuing our success. See you in July! (http: www.cti.org) Helen Cerra  
CTI President 2018/2019

CALL FOR PAPERS
2019 Annual Conference, February 10-14, 2019
Sheraton New Orleans, New Orleans, LA

The following schedule will begin the process for papers presented at the 2019 Annual Conference:

2018
May 7: Deadline for Abstracts
June 11: Authors Notified by Program Chair
Aug 6: One (1) electronic copy of draft must be sent to CTI office for review
Nov 12: Final draft, based on review comments and slides due in the CTI office

Abstract Forms can be obtained by contacting the CTI office at 281.583.4087 or at our website www.cti.org
2018 CTI President and Board of Directors

Serving as President for 2018 and 2019
Helen Cerra, ChemTreat, Inc.

2016-2018

Manufacturers

Jean-Pierre Libert
Evapco Inc.

2017-2019

Kent Martens
SPX Cooling Technologies

2018-2020

Frank Morrison
Baltimore Aircoil Company

Suppliers

Brian Hanel
Hudson Products Corporation

Pete Elliott
Suez Water Technologies and Solutions

Thomas Kline
Structural Group

Owner Operators

Frank Michell
American Electric Power

Janet Stout
Special Pathogens Laboratories

Chris Lazenby
Southern Company Services, Inc.
Meet 2018's Newest Board Members!

Frank Morrison, *Baltimore Aircoil Company*

Frank Morrison is currently Technical Director, Global Marketing at Baltimore Aircoil Company. Frank has worked in both Product Engineering and Research & Development at BAC, as well as managed the R&D Labs and the Design Operations Group, before moving to Marketing as Closed Circuit Cooling Tower Product Manager. He earned a BS in Mechanical Engineering from Drexel University in Philadelphia, Pennsylvania and an MBA from Loyola College in Maryland. Frank is a member of ASHRAE, a voting member of ASHRAE SSPC 90.1, Chair of the ASHRAE TC8.6 Standards Committee, and the Past Chair of ASHRAE TC3.6 (Water Treatment). He currently serves as Chair of the AC/EC Committee of the Industrial Refrigeration and Heat Transfer Section at AHRI. He is also active in the Cooling Technology Institute, currently serving as Chair of the CTI Marketing Committee. Frank is an inventor or co-inventor on ten U.S. patents and has authored numerous ASHRAE Journal articles and technical papers.

Thomas Kline, *Structural Group*

With over 35 years of experience in concrete assessment and repair, Tom has accumulated a wealth of knowledge and experience as Engineering Services Division Manager, then Director of Investigate Design Build Services both nationally and internationally, for STRUCTURAL – USA’s largest dedicated concrete repair company. Mr Kline manages and directs a diverse group of technical experts in providing design-build capabilities, developing turnkey repair strategies and implementing sophisticated and verifiable repair programs for a wide range of concrete repair customers. Mr. Kline also serves as a Guest Lecturer for various seminars, symposiums and workshops. He has served/is serving as an ICRI Director and Committee Chair and as Chairman on several CTI Committees.

Chris Lazenby, *Southern Company Services, Inc.*

With a few breaks in service along the way, Chris Lazenby has worked in Southern Company’s Engineering & Construction Services organization since 1994. The vast majority of that time has been spent working with power plant cooling systems: condensers, cooling towers, and associated circulating water equipment. He currently serves as Principal Engineer, where his responsibilities include leading design and procurement efforts for new systems and equipment as well as providing guidance for operation, maintenance, and retrofit of cooling system equipment for Southern Company’s existing coal, natural gas, and nuclear generating fleet.

Chris has been active within CTI, serving within the ES&M Committee, P&T Committee, Owner/Operator Council, and Board of Directors over the years as well as co-authoring multiple technical papers. He has also served on various EPRI and ASME task groups and code committees related to condenser and cooling system equipment and testing.

Chris received a Bachelor of Mechanical Engineering from Auburn University and a Master of Arts in English from the University of Alabama-Birmingham, and he is a registered Professional Engineer in the states of Alabama and Minnesota. Chris received a Bachelor of Mechanical Engineering from Auburn University and a Master of Arts in English from the University of Alabama-Birmingham, and he is a registered Professional Engineer in the states of Alabama and Minnesota.
2018 Annual Conference Speakers and Participants

(l-r) Mike Larsen, Structural Group; Patrick Schwartz, Great River Energy; Mike Dorsey, AquaCorr Corporation; Lloyd Aanonsen, General Rubber Corporation

(l-r) Salvador Avila Filho, Federal University of Bahia; Billy Childers, Aggreko Cooling Tower Services; Robert (Bob) Cunningham, International Water Consultants; Janet Stout, Special Pathogens Laboratory; Grant Swonke, Scantron Robotics USA, Inc.

(l-r) Luc DeBacker, Enexio US, LLC; Ethan Chesnut, MasterTech Services, Inc. (Program Committee Mbr); Frank Morrison, Baltimore Aircoil Inc.; Phil Kiser, PQ Corporation (Program Committee Chair)

(l-r) Brian Swalwa, IDEXX Laboratories, Inc.; Mario Bellavance, Blue Heron Cooling Tower, Inc.; Joe Evans, SPX Cooling Technologies

(l-r) Janet Stout, Special Pathogens Laboratory; Mark Williams, Walter P Moore; Jacques Da Plessis, Stellenbosch University; Robert (Bob) Cunningham, International Water Consultants; Peter Elliott, Suez Water Technologies and Solutions (Program Committee Mbr)


(l-r) Peter Elliott, Suez Water Technologies and Solutions (Program Committee Mbr); Andrew Yanjiao Xie, Nalco, An Ecolab Company; Phil Kiser, PQ Corporation (Program Committee Chair)

(l-r) John Maulbetsch, Maulbetsch Consulting; Billy Childers, Aggreko Cooling Tower Services; Grant Swonke; Scantron Robotics USA, Inc.
2018 Annual Conference Speakers and Participants continued

Monday's Group Lunch

Passing of the Gavel

Ask The Expert Panel

Educational Seminar

2018 CTI Exhibits

1st Row (l-r) Tonya Winders, Allergy & Asthma Network; Jeffrey Preece, Electronic Power Research Institute (EPRI); 2nd Row (l-r) Chad Brown, Amarillo Gear Company; Jean-Pierre Libert, Evapco, Inc. Kent Martens, SPX Cooling Technologies
A WORD FROM OUR COMMITTEES

Engineering Standards and Maintenance Committee
Annual Conference – Hilton Houston North, Houston, Texas
February 5-8, 2018

Chair: Ken Mortensen, SPX Cooling Technologies
Vice Chair, Attendance: Nina Woicke, Enexio Water Technologies GmbH
Vice Chair, Secretary: John Ahern, EvapTech, Inc.
Vice Chair, Schedule: Philip Poll, OBR Cooling Towers
AdHoc Coordinator: Jon Bickford, Alliant Energy

(1-7) James Blake, Jr., American Lightning Protection; John Ahern, EvapTech, Inc.; Ken Mortensen, SPX Cooling Technologies; Philip Poll, OBR Cooling Towers

I. ES&M Winter 2018 – opening attendees 50
II. Minutes for Summer, 2017 ES&M were accepted
III. Lead Task Group Chair Reports

Wood, Metal, and Concrete Materials Task Group [Bill Howard]
- ESG-123 Repair and Restoration of Concrete, Narendra Gosain and Tom Kline – draft was worked at this meeting.
- ESG-153 Recommended Guidelines for Portland Concrete, Narendra Gosain and Tom Kline – Ad Hoc review is complete for this document.
- ESG-166 Fire Wall, – Combining FRC and Fire Wall into 1 guideline.

Mechanical and Electrical Task Group [Craig Burris]
- STD-111 Speed Reducers - Craig Burris – This document has completed AdHoc.
- Chapter 11 – Electrical Components, Craig Burris – Worked at this meeting.

FRP and Plastics Task Group [Jamie Bland]
- STD-136 Thermoplastic Material for Fill, Chris Bowman, Ken Mortensen – Working to re-insert PP, PE, and FR-PP into the document; physical properties are generally agreed within the task group.
- STD-137 FRP Test Protocol, Ken Mortensen, Bhyrav Mutnuri – This standard becomes the basis for the 1st Material Certification Test Protocol, Working with Denny Shea and Jesse Seawell to establish the process.
- STD-152 FRP Structural Design, Ken Mortensen, Tom Toth – Opened to address temperature & water immersion safety factors for FRP materials.
- ESG-164 on Thermoplastic Fill, Nina Woicke – The document is in major rework; plan to split out into Standards on burn testing, pack crush, and UV exposure of PVC Film Fills.
- Information, R Seismic Factor, Bill Howard, Tom Toth – Update on the status of the LRFD code, Ballots on Chapter 5 and 9 expected in coming months; need comments from the manufacturers on the short-comings of the document. Continue looking into test plans with Jim Harris.

Tower Operations Task Group [Phillip Poll]
- STD-203 - Industrial Cooling Tower, Tom Toth – This document has completed AdHoc.
- Chapter 1, Richard Hebert, Geoff Eddy – Members recruited and voting members established. Working.
- Chapter 4, Winter Operations – John Ahern – This document has been re-affirmed, awaiting submittal for BOD Approval.

Hazard & Environmental Protection Systems Task Group [James Blake]
- ESG-120 Lightening Protection, James Blake – AdHoc complete, awaiting submittal for BOD Approval.
- Chapter 12, Fire Protection – In AdHoc.
- Field Erection – Tom Toth, Ken Pate – Working.

New Business
- Nina Woicke, Enexio, and John Ahern, EvapTech were the ES&M panelists at “Ask the Expert” and represented the committee well.

IV. Adjournment
A WORD FROM OUR COMMITTEES

Performance & Technology Committee Meeting Minutes
Annual Conference – Hilton Houston North, Houston, Texas
February 5-8, 2018
Chair: Kent Martens, SPX Cooling Technologies
Vice Chair: Jared Medlen, McHale Performance
Vice Chair: Chris Lazenby, Southern Company Services

Task Group Chair Reports

• ATC-105 – Acceptance Test Code for Water Cooling Towers
  (Larry Burdick, Chair). Voted and approved language for:
  o Appendix K - References
  o Appendix L – Determining Wind Velocity on Natural Draft
    Cooling Towers
  o Appendix M – Deviation from Design Cold Water
    Temperature
  o Appendix N – Sample Forms
  o Appendix O – Pychrometer Specification
  o Appendix Q – Helper Tower
  As a quorum was not present, a follow up poll will be taken.
  Appendices that have been approved by committee vote are still
  pending complete Ad Hoc review. Part I and II are complete and
  ready for formatting.

• STD-204 Sound Certification  (Doug Randall, Chair)
  o Reviewed latest draft of the proposed document.
  o Latest revisions included a paragraph addressing model
    number numbers and an appendix item that summarized
    supplemental information to the Data of Record.
  o Still need to address the sound meter calibration device.
  o Need to address impact of variation on motor speed with 50
    vs 60 Hz applications.
  o Conference call planned in advance of summer meeting.

• STD-201 Standard for the Certification of Water Cooling
  Tower Thermal Performance
  o Update on review of the CTI label template
  o Hussnain proposed an alternate template where Revisions
    are classified as minor or major. Minor revisions will not
    incur a change to the label template, reducing the frequency
    of changing labels. Clarifications on the intricacies of this
    classification will be needed.
  o Frank Michell raised the topic of archiving all changes made
    to a revised STD-201 standard document. Ian Butler offered
    to share the process followed by ECC. The
    AHRI process was also mentioned. These
    processes will be reviewed.
  o Ian Butler requested feedback for the
    introduction of factory audits within the
    certification program. This was brought up
    last year by Paul Lindahl, to which ECC
    indicated it would be interested to manage
    these audits on behalf of CTI.
  o Discussion on proper methods to correct for fan cylinder
    pressure recovery when calculating fan efficiency. (To be
    continued.)
  o Further work remaining to develop language for uncertainty
    measurement and reporting standards.

• ATC-140 – Drift Measurement Test Code
  (Chris Lazenby, Chair).
  o Discussion on preliminary draft of a proposal for the R&D
    committee to study surface tension measurements and the
    effect of surfactants on surface tension.
  o Ray Post shared his extensive experience in this area with
    the group, leading to an open discussion on instrumentation,
    sample collection locations, and the effects of temperature
    on the surface tension of water.
  o Ken Hennon will prepare an updated version of the R&D
    proposal, and circulate for comment.
  o Concurrent with this study, parts of the code need to be
    modified, including details on instrumentation and sample
    locations with the intent of ultimately adding any changes
    needed as a result of the study.

• PFM-146 Water Flow Measurement  (Dave Wheeler, Chair)
  o Discussion on Chapter 3 which allows use of the Simplex
    tube, and whether or not to eliminate it. Group consensus
    was that STD-146 should not prohibit use of any style tube,
    provided it meets calibration and accuracy requirements.
  o Consensus for mandating elliptical/Prandtl type tubes in
    ATC-105 (i.e., Simplex test would be excluded)
  o A quorum was not present; electronic vote to follow.
  o Discussion on Appendix C regarding number of calibration
    points required and the use of Reynolds number as the
    dependent variable to determine pitot coefficient.
The meeting was started on Feb. 5, 2018 at 3:45 pm at the Houston Hilton North.

There were 31 attendees, of which 15 were first time attendees. Following introductions of all present we Approved the minutes of the 2017 Summer Meeting.

The next event was the review of the status of the active task group projects. This review was updated at the closing session of the meeting which was Feb. 7, 2018 at 2:30 pm.

Task Group Reports:

WTG 161, Best Practices Guidelines for Cooling Water Systems, Jack Bland (Chair)/Bill Pearson (Vice-Chair).

Twenty members of all categories are members of the subcommittee. The task group had one conference call since CTI 2017 winter meeting. The task group has decided on a spreadsheet type format; categories of the spreadsheet have been decided. HPI/CPI/Power guardrails for “best and acceptable” have been completed. HVAC “acceptable” has been completed. Other categories include Primary Metals/Pulp & Paper/ Food & Beverage. Work will continue at the summer meeting. We anticipate that the document will be a panel discussion topic for the CTI 2019 winter meeting.

WTG 126, Application of Non-Oxidizing Biocides, Brian Corbin (Chair)/Dwight Emerich (Vice-Chair).

The document still needs to be reformatted. Brian will be sending out the draft document for subcommittee review before the summer meeting. The goal is to complete work this summer. Planning to go to Ad Hoc later this year.

WTG 130C, Microbiological Monitoring, Pete Elliott (Chair)/Christine McInnis (Vice-Chair).

The document is currently in Ad Hoc.

WTG 130A, Corrosion Monitoring, Matt Wangerin (Chair)/no vice chair named.

Final document is currently in Ad Hoc.

130B, Deposit Monitoring, Bob Cunningham (Chair), Dwight Emerich (Vice-Chair).

The subcommittee has eight members. The document is 95% complete. There is a nice review of current instruments in use today. Task group has not received any additional devices from suppliers for inclusion into the document. Matt Wangerin is updating two Solenis’ monitoring devices to complete the draft document. A conference call is anticipated before the 2018 summer meeting to review the draft document. The goal is to have the final document to Ad Hoc later in the year.

WTG 155, Cooling Water Reuse, Jim Kanuth (Chair)/Need Vice-Chair. Task group discussed section updates and are identifying additional contributors. Bibliography needs updating as references stop at 2005. A conference call will take place in the March/April period for review of the draft document. Currently there are about 20 members are on the subcommittee.

WTG 168, External Reuse of cooling water make up, Paul Puckorius (Chair)/Need Vice-Chair. Paul was not able to attend the 2018 winter meeting, so no subcommittee work was conducted at the conference. Further work was postponed until the San Antonio summer meeting. The task group is focused on constructing a new document discussing water generated off site for reuse in cooling water systems. We want operators to know the potential impact on the system from use of water of varying quality.

WTG 158, Physical Water Treatment, Mark Winter (Chair). Document is currently at Ad Hoc

WTG 125, Instrumentation and Control, Mike Dorsey (Chair) – complete and approved by board

WTG 142, Galvanized/White Rust, John Zibrida (Chair), Dwight Emerich (Vice-Chair).
Currently the task group has nine members. John will be sending out the current white rust document along with the AWT white rust document to the subcommittee. SPX and Evapco were mentioned as possible contributors. Work will continue at the summer meeting. A literature search on the subject only revealed patents on new galvanized corrosion inhibitors. We don’t anticipate the need for substantial changes to the current document.

**GDL 159, Legionella**, Bill Pearson (Chair)/Helen Cerra (Past Chair).

The document is going through final editing. Looking at going to Ad Hoc later this year.

**New Business:**

We hope to have, and are working towards a panel discussion about the **WTG 161, Best Practices Guidelines for Cooling Water Systems** at the 2019 winter meeting. It is anticipated that this will be a draft version of the document which will then be reviewed by the panel and opinions about the limits and concept input will be heard from the audience.

After work on the non-oxidizing biocides document, **WTG 126, Application of Non-Oxidizing Biocides**, is completed (likely to be complete in the summer of 2018), we discussed developing a similar document in the same format for newer oxidizing biocides. There is an existing document for oxidizing biocides, **WTG 141**, which was reviewed in 2016 and is listed for sale. However, that document does not address new developments in oxidizing biocides which have come into use. We want to start on this document at the summer meeting.

**Old Business:**

Three documents are in the Ad Hoc review stage, and they are past the stage for receiving the reviews. The plan is to locate and/or have the reviews from the existing reviewers completed or to add new Ad Hoc reviewers. The target is to have these reviews by the summer meeting, which is important, so the documents can be completed.

**Upcoming Meetings and Liaison Reports:**

**2018 AWT Annual Convention and Exposition.** Annual meeting in Orlando, Florida, on September 26-29. Attendance is growing and exhibitors expanding to over 150.

**2018 International Water Conference.** Annual meeting in Scottsdale, Arizona, November 4-8.

**ASHRAE.** Annual Conference Jun 23-27, 2018, in Houston, TX.

**CTI.** 2018 CTI committee summer workshop will be held in San Antonio, TX, La Cantera Resort on July 15-17.

The Committee adjourned at 2:30 PM.

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**CTI 2018 Committee Workshop**

**Monday Evening, July 16, 2018 - 6:00p – 9:00p**

**on site at the hotel**

Monday Evening's Hospitality / Games / Food and Fun suite is open to all CTI Attendees and guest. There will be entertainment for all. The best part is that this comes at NO CHARGE! Just be sure to let us know (when registering for the Committee Workshop) how many will be in your party.

- **Monday Evening**  
- **No Charge**
2018 Committee Workshop Agendas

ENGINEERING, STANDARDS AND MAINTENANCE

Ken Mortensen - SPX Cooling Technologies, Chair
John Ahern - EvapTech, Inc, Vice-Chair, Secretary
Nina Woicke - Enexio, Vice Chair, Attendance
Philip Poll - OBR Cooling Towers, Vice-Chair, Scheduler
Jon Bickford - Alliant Energy, AdHoc Coordinator

I. Review Minutes for Winter 2018 ES&M Meeting
II. Task Groups Meetings for Document work by category:


Mechanical and Electrical Task Group [Craig Burris] - Chapter 11 Electrical Components


WATER TREATING COMMITTEE

Charles Kuhfeldt, CauseWay Water Consulting & Service, Chair
Dwight Emerich, Solenis, LLC, Vice Chair
Brian Corbin, Dow Microbial Control, Secretary

1. Open the Session, Monday, following the Opening General Meeting
2. Introduction of Attendees
3. Review and Approve the Minutes from the 2018 Annual Conference
4. Task Group Reports
   a. WTG 125, Instrumentation and Control, Mike Dorsey (Chair)
   b. WTG 126, Application of Non-Oxidizing Biocides, Brian Corbin (Chair), Dwight Emerich (Vice Chair)
   c. WTG 130A, Corrosion Monitoring, Matt Wangerin (Chair)
   d. WTG 130B, Deposit Monitoring, Bob Cunningham (Chair), Dwight Emerich (Vice-Chair).
   e. WTG 130C, Microbiological Monitoring, Pete Elliott (Chair)
   f. WTG 142, Galvanized/White Rust, John Zibrida (Chair), Dwight Emerich (Vice-Chair).
   g. WTG 155, Cooling Water Reuse, Jim Kanuth (Chair), (Need Vice-Chair)
   h. WTG 161, Best Practices Guidelines for Cooling Water Systems, Jack Bland (Chair), Bill Pearson (Vice-Chair)
   i. WTG 168, External Reuse for cooling water make up, Paul Puckorius (Chair), (Need Vice-Chair)
   j. WTG 158, Physical Water Treatment, Mark Winter (Chair)
   k. GDL 159, Legionella, Bill Pearson (Chair)/Helen Cerra (Past Chair)
5. Finalize the session schedule for Task Group Work
6. New Business
7. Old Business
   b. Status of the Water Treating Panel Discussion for 2019
6. Liaison Reports
8. Task Group Work
9. Closing Meeting
   a. Recap Group Reports
   b. Recap status of new and old business topics
10. Adjourn

I. Review/Approval of 2018 Annual Conference P&T Minutes
II. Task Group Reports
   a. ATC-105 Acceptance Test Code - Larry Burdick
   b. ATC-105S Acceptance Test Code for Closed Circuit Coolers (modifications needed for dry/adiabatic performance)
   c. STD-201 Certification – Jennifer Hamilton
   d. STD-202 Publication - Paul Lindahl
   e. PFM-143 Airflow Testing – Sander Venema
   f. ATC-128 Sound Test Code – Larry Burdick
   g. ATC-140 Isokinetic Drift Measurement Test Code for Water Cooling Tower – Chris Lazenby
   h. Sound Certification Task Force – Doug Randall
   i. Water Usage and Measurement Task Force – Zan Liu

III. Task Group Meeting Schedules
CTI WANTS YOU AS A MEMBER

Membership Classification

Manufacturer Corporate Membership:
Manufacturer Corporate Members produce Heat Rejection Systems for the industry. A Manufacturer Corporate Member will receive one set of CTI Standards delivered to a preferred location. Additional copies of the CTI Standards can be obtained at a discounted price. Manufacturer Corporate Members will be eligible for all CTI discounts and are permitted to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. A Manufacturer Corporate Member will designate one representative to have voting privileges. Annual Cost: $9951

Manufacturer Affiliate Membership:
A Manufacturer affiliate is any organization or individual associated with a Corporation that has a current Manufacturer Corporate Membership in the CTI. Manufacturer Affiliate Members are permitted to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. Such members do not receive a set of CTI Standards or have voting privileges, but qualify for all CTI discounts. Annual Cost: $4951

Supplier Corporate Membership:
Supplier Corporate Members are companies that supply equipment, parts or services for Heat Rejection Systems. A Supplier Corporate Member will receive one set of CTI Standards delivered to a preferred location. Additional copies of the CTI Standards can be obtained at a discounted price. Supplier Corporate Members are eligible for all CTI discounts and will be permitted to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. A Supplier Corporate Member will designate one representative to have voting privileges. Annual Cost: $9951

Supplier Affiliate Membership:
A Supplier Affiliate Member is any organization or individual associated with a Corporation that has a current Supplier Corporate Membership in the CTI. Supplier Affiliate Members will be allowed to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. Supplier Affiliate Members will not receive a set of CTI Standards, do not have voting privileges, but do qualify for all CTI discounts. Annual Cost: $4951

Owner/Operator Corporate Membership:
An Owner/Operator Corporate Member is a company that owns, operates, maintains or provides asset management services for Heat Rejection Systems at one or multiple locations. Owner/Operator Corporate Members will receive one set of CTI Standards delivered to a preferred location and are eligible for all CTI discounts. Additional copies of the CTI Standards can be obtained at a discounted price. Owner/Operator Corporate Members are permitted to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. Owner/Operator Corporate Members will designate one representative to have voting privileges. Annual Cost: $6951

Owner/Operator Individual Membership:
An Owner/Operator Individual is one who works for a company that owns, operates, maintains or provides asset management services for Heat Rejection Systems. Owner/Operator Individual Members are permitted to display the official CTI membership logo on any correspondence while they are members in good standing. Owner/Operator Individual Members receive a set of CTI Standards, delivered to a preferred location, have voting privileges and qualify for all CTI discounts. Additional copies of the CTI Standards can be obtained at a discounted price. Annual Cost: $2951

Consultant Membership:
A Consultant is an individual or company, with five or fewer employees, that provides services to the Heat Rejection Systems Industry. Consultant Members will receive one set of CTI Standards delivered to a preferred location, and are eligible for all CTI discounts. Additional copies of the CTI Standards can be obtained at a discounted price. Consultant Members are permitted to display the official CTI membership logo on any correspondence at each location, while they are members in good standing. A Consultant Member has voting privileges. Annual Cost: $5001

Student Members:
Student Members are individuals who are actively enrolled in an institution of higher education, carry a minimum of nine hours of accredited curriculum per semester and are engaged directly or indirectly with heat transfer and heat rejection systems. Student members are permitted to display the official CTI membership logo on any correspondence while they are members in good standing. Student Members will not receive a set of CTI Standards and do not have voting privileges. Annual Cost: $251

Honorary Lifetime Member:
An Honorary Lifetime Member is a retired or semi-retired individual and has made a significant contribution to the Heat Rejection Systems industry. Honorary Lifetime Members are appointed by the Board of Directors. Such members are permitted to display the official CTI membership logo on any correspondence, qualify for all CTI discounts but do not receive a set of CTI Standards and do not have voting privileges. Registration fees for Honorary Lifetime Members are waived for the CTI Committee Workshop and CTI Annual Conference. No Charge

1Memberships outside of North America (United States, Mexico, and Canada) will be assessed $100.00 additional charge to the membership cost to cover added postage and handling costs.
2Note: Membership applications and current memberships are subject to review and approval by the CTI Administrator as to the assignment of the proper membership category.

Applications can be found on our website: www.cti.org
PICTURES FROM THE SUCCESSFUL 2018 CTI EXHIBITS
CTI Exhibits
Tuesday, Feb 12, 2019 • 4:00p - 8:30p / Sheraton New Orleans • New Orleans, LA

Don’t forget to reserve your space. A total of 80 exhibit spaces available at $1350 a space with a number of tables already reserved (indicated in shaded red).

for more information contact Virginia Manser at 281.583.4087 or vmanser@cti.org

Exhibitors to date:
4. Rexnord Industries
5. Cambridge
8. Agni
9. FasTec International
10. Enexio US LLC
20. Aggreko
21. Cofimco
22. Hudson Products
23. Bedford Reinforced Plastics
44. McHale Performance
25. EvapTech, Inc
26. Amarillo Gear Company
28. CleanAir Engineering
33. Environmental Safety Tech
34. Midwest Cooling Towers
39. Nanjing Kangte FRP
40. Proco Products
41. International Cooling Tower
44. Cool Water Technologies
47. ChemTreat, Inc.
48. SPX Cooling Technology
51. Brentwood Industries
52. Structural Group
53. Baltimore Aircoil Company
56. Galebreaker Industrial Ltd
57. Sunbelt Rentals
64. Dynamic Fabricators
The Palmer Course is one of two golf courses at La Cantera Resort, it is named after its famous designer, golf legend Arnold Palmer. Firmly situated on 225 acres of Texas Hill Country, the golf course features plenty of elevation changes to keep golfers on their toes. There is also an abundance of mature oaks covering the course, requiring accuracy off the tees. The unique layout incorporates dramatic waterfalls, lakes, and numerous white sand bunkers throughout. La Cantera Resort’s Palmer Course has several signature holes, most notably the fourth hole. This demanding par 3 requires a long carry over a lake with waterfalls along the front of the green.

Each golfer (or individual) is responsible for their own drinks, snacks and transportation.

FUTURE MEETING DATES

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<th>Annual Conference</th>
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<td>February 10-14, 2019</td>
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<td>Memphis, TN</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>July 12-15, 2020</td>
<td>February 7-11, 2021</td>
</tr>
<tr>
<td>Steamboat Grand</td>
<td>Sheraton New Orleans</td>
</tr>
<tr>
<td>Steamboat, CO</td>
<td>New Orleans, TX</td>
</tr>
</tbody>
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Registration Form

Committee Workshop July 15-18, 2018
La Cantera Resort, San Antonio, Texas

Name _____________________________________________ Nickname for Badge ______________________

Company __________________________________________ Spouse Name if Attending ______________________

Address ___________________________________ City _____________________ State _________ Zip _________

Phone ________________________  FAX _____________________ Email: __________________________

☐ Full 3 Day Registration ........................................................................................................... $475.00 $500 after July 6

☐ Golf Tournament (Handicap___________) Tee Time Begins @ 7:30a ................................... $125/pp Closed July 1

  Spouse Name ___________________ (Handicap_______) .........................................................$125/pp Closed July 1

☐ I will attend Monday Night’s Hospitality / Fun Evening ...........................................................N/C

☐ I will bring ______ guest with me for Monday Night’s Hospitality, Games, Food, and Fun ............ N/C

TOTAL DUE _________________

Enclosed is my check made out to CTI for $ ______________________

Registration can be charged to the following cards: [ ] Visa [ ] Master Card [ ] American Express

Card# ______________________________ Exp. Date ____________ Cardholder ____________________

CVV/CVC/CID Code __________________ (must have to process payment).

Payment for meeting registration can be made at the meeting, but please pre-register. (All recreational activities must be paid for in advance. Events will be cancelled if we do not receive enough reservations by June 26.)

REFUNDS WILL BE MADE IN FULL FOR CANCELLATIONS MADE PRIOR TO JULY 6, 2018.
15% CHARGE ON ANY CREDIT CARD REFUND MADE - NO EXCEPTIONS!

2018 Committee Workshop, July 15-18, 2018
La Cantera Resort, San Antonio, Texas

San Antonio is a city that has no shortage of things to do. Whether you’re headed to the Alamo Mission in San Antonio or one of the many historical destinations in the area, you will get a sense of why so many people flock to this city every year. At the end of your journey back in time, you will want to take a trip to the San Antonio River Walk, which is one of the most intriguing tourist destinations in the country. This journey will allow you stroll along the banks of the San Antonio River to see a number of bars, shops, and restaurants. You are sure to find something that will suit your fancy when you head through this section of the town. The Fairmount Hotel is another point of intrigue. It’s the city’s second oldest hotel and is in the Guinness Book of World Records for being the heaviest building that was moved intact. You could head from the River Walk down to SeaWorld, Six Flags Fiesta, Splashtown, and Morgan’s Wonderland. These attractions provide you with a welcome escape from the usual sights and sounds. These places offer enough entertainment for you to spend an entire day at each one of them. With so much to do, you’ll be glad you have a room awaiting you back at the La Cantera Hill Country Resort.

La Cantera Reservations: https://www.destinationhotels.com/la-cantera-resort-and-spa

Guest Room Rates: (Cut off Date: Wednesday, June 20, 2018):
• $199/plus tax - Single and Double Rate - Hotel room rates are subject to applicable state and local taxes.
Press Release
Contact: Chairman, CTI Multi-Agency Testing Committee
Houston, Texas, 1 May 2018
The Cooling Technology Institute announces its annual invitation for interested drift testing agencies to apply for potential Licensing as CTI Drift Testing Agencies. CTI provides an independent third party drift testing program to service the industry. Interested agencies are required to declare their interest by July 1, 2018, at the CTI address listed.

2018 Board of Directors
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Vice-President.................... Brian Hanel
Treasurer......................... Frank Michell
Secretary....................... Frank Morrison
Director........ Peter G. (Pete) Elliott
Director............... Thomas Kline
Director..........Chris Lazenby
Director.........Jean-Pierre Libert
Director......... Kent Martens
Director.........Janet Stout

CTI NEWS
COOLING TECHNOLOGY INSTITUTE
3845 Cypress Creek Parkway, Ste 420
Houston, Texas 77068
(281) 583-4087

A quarterly publication containing news of CTI and its activities.
Terry Ogburn, Editor-in-Chief
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Donna A. Jones, Administrative Assistant
Andrew B. Manser, Administrative Assistant
Angie Montes, Administrative Assistant
CTI News published continuously since May 1962. Published by the Cooling Technology Institute, Established in 1950.