



1791 Tullie Circle, N.E./Atlanta, GA 30329
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TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. 10.02 DATE 13-July-2020

TC/TG/MTG/TRG TITLE Automatic Ice Making Plants & Skating Rinks

DATE OF MEETING 13-July-2020 LOCATION Virtual - Zoom

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
John Gallaher	2018	J. Brian Blahey	2018	Art Sutherland
Dan Dettmers	2018			John Scott
Greg Scrivener	2018			Wayne Borrowman
				Daryl Stauffer
				Charlie Henck
				Quinn Vo

DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

TAC Section Head: Charlie Henck	SH10@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	See ASHRAE email alias list for needed addresses.
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

**Minutes – 2020 Annual Meeting, Virtual
ASHRAE Technical Committee 10.02
Automatic Ice Making Plants & Skating Rinks**

Date: Monday, July 13, 2020

Time: 4:30 PM to 6:30 PM

Place: Virtual TC Meeting/Zoom Id

<https://zoom.us/j/95113289978?pwd=Y2VPN3pxOHFvMkxjb1pCcDJkQjFyUT09>

1. Meeting was called to order by John Gallaher at 4:30pm
2. Introduction of members and guests was completed. Attendance recorded in appendix.
3. A quorum was established (3 of 4 voting members)
 - a. Voting Members: John Gallaher, Dan Dettmers, Greg Scrivener, J. Brian Blahey
 - i. Present: John G., Dan D., Greg S.
 - ii. Absent: Brian B.
4. John read the ASHRAE code of ethics
5. John read the current scope of TC 10.02
6. John reviewed the proposed agenda – no new items added
7. Minutes review – from 2020 Winter Orlando
 - a. Any notes/corrections? – no
 - b. Motion to accept minutes by Greg Scrivener, seconded by Dan Dettmers.
 - i. Minutes approved by vote (3-0-0-1): 3 in favor, 0 against, 0 abstain, 1 absent
8. Report from Chair:
 - a. TC/TG chairs breakfast. John made a special note about requests for Hightower award
 - b. No items to note for actions between meetings
9. Liaison Reports:
 - a. Report from section head (Charlie Henck):
 - i. Noted the September 1st deadline for Hightower award.
 - ii. August 3rd is the deadline for program submissions.
 - iii. Charlie noted the TC reorganization discussions are ongoing and TC 10.02 should continue any intent to merge with other refrigeration application TCs.
 - b. Research (Lorenzo Cremaschi) – not in attendance
 - c. Handbook (unknown?) – not in attendance
10. Sub-committee Reports:
 - a. Handbook (John Scott) – made a note that he is not sure who our TC liaison is, and he has sent an email to the alias email for a name and some feedback.
 - i. We have 2 chapters – Ice rinks (44) and ice manufacturing (43)
 - ii. John shared about the “authoring portal” and instructions on how to get there, and the requirements to use Internet Explorer.
 1. [action] John Scott to share the document with the TC 10.02 committee

- iii. Schedule: The deadline for the revision is Winter/2021, and the TC needs to approve by July 2021. Our new publish date is 2022.
- iv. Ice Rinks:
 - 1. Previous Action – Art has some changes he wants to submit for Ice Rinks.
 - a. [action] Art to submit material for review and inclusion.
 - 2. Wayne also would like to read the chapter and send comments
- v. Ice Manufacturing – John said it was reviewed 4 years ago and should be in good shape.
- b. Research (Greg Scrivener) – no major changes.
 - i. We still have the past RTAR 1727 (Interaction of Ice Arena Space...) we are working on (future action for Greg)
- c. Standards (Greg Scrivener)
 - i. Standard 15: Greg reported on specific addendums being reviewed and published regarding A2L refrigerants. See appendix reported updates.
 - ii. Standard 34: no updates from Greg
 - iii. Canadian B52 – Greg noted there is some work to be done to update the standard for the use of A2L refrigerants.
 - iv. Some additional notes/work – there is a needed update regarding refrigerant piping in concrete (review/submission by Wayne B.).
- d. Programs (Art Sutherland)
 - i. Art submitted the same group of topics regarding safety for a seminar without success. This could be an issue with the ASHRAE portal and IE browser, so Art sent a Word version to the ASHRAE Liaison (Gary Debes).
 - 1. [action] Art is asking for help to submit this through the ASHRAE portal. Dan said he would help with that.
 - ii. John noted the August 3rd deadline for Seminar, Workshop, Forum, Debate, and Panel Proposals.

11. Membership (John Gallaher)

- a. John noted the upcoming membership changes: Brian B. rolls off, John Gallaher rolls off, Dan stays as voting, Greg stays as voting, John Scott to be added as voting, Art to be added as voting, Daryl to be added as voting (secretary), Kathleen to be added as voting.

New voting roster post 2020 Summer meeting:

Daniel Dettmers	Voting	Chair
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Arthur Sutherland	Voting	Vice Ch/program Subc ch
Daryl Stauffer	Voting	Secretary
John Scott	Voting	Handbook Subcommittee Chair
Gregory Scrivener	Voting	Research/standards Subc ch
Kathleen Neault	Voting	Member

- b. Wayne: wanted to be added as corresponding member. John noted that Wayne needs to be added as a corresponding member.

12. New/unfinished business

- a. Re-organization: John reviewed the proposal for different options, based on the email from Tom Wolgamot from 10.08 and section head Charlie.
 - i. John reviewed that document with the various options – see appendix, Scope of TC 10 DS_TDW edits_June12_2020.docx.
 - ii. The feedback from John so far has been Option 1.
 - iii. There were notes about needing a new Scope in the merger vote (from Dan Dettmers).
 - 1. Charlie said after all other TCs vote for the new TC with proper Scope, then there needs to be a vote for officers.
 - iv. Dan Dettmer made a motion to merge with the other section 10 refrigeration applications TCs under reviewed proposal option 1, TC 10.C Refrigeration Applications. The motion includes the proposed new scope:

TC 10.C Refrigeration Applications

Scope: TC 10.C is concerned with the application of refrigeration systems for precooling, processing, manufacturing and storage of foods, beverages and other products, including the understanding and procedures for calculating design and hourly refrigeration loads, as well as system energy usage. This TC includes the application of equipment and systems for ice manufacturing and ice storage, as well as ice skating and curling rinks. This scope excludes walk-in freezers and coolers <3,000 sq. ft. and ice making systems less than five tons of ice per day.

Notes: Deleted “packaging”. Moved thermal storage systems to 10.A since TES is not an end-use application as much as a component of a general system design. Refrigeration loads is changed from just the design load to explicitly include the responsibility for how load varies and for energy usage, which means how system components perform. Changed from Refrigerated Applications to Refrigeration Applications. This is TC 10.2, 10.5, 10.8

- 1. Greg Scrivener supported the motion.
- 2. Motion approved (3-0-0-1): 3 in favor, 0 against, 0 abstain, 1 absent

13. John noted some changes with the Refrigeration Technology committee. John will send out some communication regarding the new sub-committees. See attachment for REF-CPCC Report to Technical Committees (5E-REF-CPCC Rprt to TechC.20_Release1.docx)

14. Other notes:

- a. Dan said the Global Cold-Chain is canceled

b. Dan asked if there is any advice about opening ice-rinks (from an equipment/technology standpoint).

i. Greg said that there are some guidelines from a “participant/behavior” standpoint, but not on the equipment.

15. Next Meeting is currently scheduled during the January 23-27, 2021 conference in Chicago.

The decision regarding in-person or virtual will supposedly be made in August.

16. Motion to adjourn, approved.

Appendix Items

Attendance in Virtual/Zoom Meeting

Participants (9)

Find a participant

DS	Daryl Stauffer (Me)		
JS	John S		
AS	Art Sutherland		
DD	Dan Dettmers		
JG	John G		
GS	Greg Scrivener		
Q	qvo		
WB	Wayne Borrowman		
CH	Charlie Henck		

ASHRAE Standard 15 update

SSPC 15 update from today

Greg Scrivener <GScrivener@laporteconsultants.com>
To: Daryl Stauffer; Jim Caylor
Cc: Bruce L Griffith; John Gallaher

Reply Reply All Forward Mon 7/13/2020 5:43 PM

SSPC 15 Update July 13, 2020 (TC 10.1, 10.2 and 10.3)

Letter	Topic	Status
15.2	Full 15.2 PPR	PPR1 Completed 6/20
a	Section 9.7.5 f factor	Published 02/20
b	"listed" and "labeled"	Published 02/20
c	A3 vending machines	PPR1 complete and PPR2 in progress
d	TPS change for 15	Approved but publication delayed until 15.2 is complete
e	Piping	Currently out for PPR1
f	Make informative annex	PPR complete but not yet published.
g	Modify Section 7.2	APR (Advisory Public Review) complete
h	Rewrite phase 1 (reorder)	Cancelled
i	Remove ammonia	PPR complete and will be published soon
j	Remove non-flammable	In progress
k	Listed reference A2L	In progress

- Several other working groups are in progress (i.e. machine room ventilation changes for A2L)
- SSPC 15 is meeting every 3 weeks currently and invitations are available from ASHRAE as they are public.

LAPORTE | **Greg Scrivener** P.Eng.
Partner, Lead Refrigeration Engineer

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Technical Committee reorganization proposals

RE: Section 10 schedule for meetings

Tom Wolgamot <twolgamot@dcengineering.net>
To: Charlie Henck; matthew.stinson@irco.com; Repice, Chris; Bruce L Griffith; Adnan Ayub; Daryl Stauffer; John Gallaher; Gordon Struder; eric.ramon@coolrefrig.com; Doug Scott; dreindl@wisc.edu; +14 others

Reply Reply All Forward Fri 6/12/2020 4:11 PM

Scope of TC 10 DS_TDW edits_June12_2020.docx 23 KB

All – it was dutifully pointed out to me that we had discussed another, even simpler idea – to re-organize the meeting efforts at the conferences to allow the boiler-plate stuff to be conducted as a larger group. This also would be a time that the Program and Research subcommittees could coordinate ideas and efforts.

I have included this as OPTION 0 in this revised document.

Thanks everyone for your review, feedback & committee approvals to move forward.

Tom Wolgamot » www.dceengineering.net
Direct » 406.218.2210 | twolgamot@dcengineering.net

Scope of TC 10 DS_TDW edits_June12_2020.docx

Current

TC 10.1 – Custom Engineered Refrigeration Systems

Scope: TC 10.1 is concerned with one of a kind industrial applications of standard or special equipment to meet specific refrigeration requirements.

Handbook Chapters:

- Refrigeration: Liquid Overfeed Systems
- Refrigeration: Component Balancing in Refrigeration Systems
- Refrigeration: Secondary Coolants in Refrigeration Systems
- Refrigeration: Concrete Dams and Subsurface Soils
- Refrigeration: Refrigeration in the Chemical Industry
- Refrigeration: Cryogenics
- Refrigeration: Ultralow-Temperature Refrigeration
- Refrigeration: Biomedical Applications of Cryogenic Refrigeration
- Refrigeration: Terminology of Refrigeration

TC 10.2 – Automatic Ice Making Plants/Skating Rinks

Scope: TC 10.2 is concerned with the application of equipment and systems for automatic ice manufacturing systems for five tons of ice per 24 hours and larger, including ice builders or ice storage systems, and also including ice skating and curling rinks.

Handbook Chapters:

- REFRIGERATION: Ice Manufacture
- REFRIGERATION: Ice Rinks

TC 10.3 – Refrigerant Piping

Scope: TC 10.3 is concerned with the design, layout, sizing, specification, insulation, oil carrying characteristics, safety and corrosion of refrigerant piping, excluding secondary refrigerant piping.

Handbook Chapters:

- REFRIGERATION: Halocarbon Refrigeration Systems
- REFRIGERATION: Ammonia Refrigeration Systems
- REFRIGERATION: System Practices for Carbon Dioxide Refrigerant
- REFRIGERATION: Insulation Systems for Refrigerant Piping

TC 10.5 – Refrigerated Distribution and Storage Facilities

Scope: TC 10.5 is concerned with the application of packaged and customized refrigeration systems for the industrial processing, packaging and storage of foods, beverages and other products. This scope excludes all refrigerated storage facilities less than 3,000 sq. ft. and systems used in the transport of refrigerated products.

Handbook Chapters

- REFRIGERATION: Thermal Properties of Foods and Beverages
- REFRIGERATION: Cooling and Freezing Times of Foods
- REFRIGERATION: Cooling and Freezing Times of Foods
- REFRIGERATION: Food Microbiology and Refrigeration
- REFRIGERATION: Refrigerated-Facility Design
- REFRIGERATION: Methods of Pre-cooling Fruits, Vegetables, and Cut Flowers
- REFRIGERATION: Industrial Food-Freezing Systems
- REFRIGERATION: Meat Products
- REFRIGERATION: Poultry Products
- REFRIGERATION: Fishery Products
- REFRIGERATION: Dairy Products
- REFRIGERATION: Eggs and Egg Products
- REFRIGERATION: Deciduous Tree and Vine Fruit
- REFRIGERATION: Citrus Fruit, Bananas, and Subtropical Fruit
- REFRIGERATION: Vegetables
- REFRIGERATION: Fruit Juice Concentrates and Chilled-Juice Products
- REFRIGERATION: Beverages
- REFRIGERATION: Processed and Prepared Foods
- REFRIGERATION: Bakery Products
- REFRIGERATION: Chocolates, Candies, Nuts, Dried Fruits, and Dried Vegetables

TC 10.6 – Transport Refrigeration

Scope: TC 10.6 is concerned with the application of standard and special refrigeration equipment to all air, land, and sea transportation systems.

Handbook Chapters

REFRIGERATION: Cargo Containers, Rail Cars, Trailers, and Trucks

REFRIGERATION: Marine Refrigeration

REFRIGERATION: Air Transport

TC 10.7 – Commercial Food and Beverage Refrigeration Equipment

Scope: TC 10.7 is concerned with the application and performance of equipment and systems for the refrigeration of food and beverages in commercial operations. This includes commercial equipment such as refrigerated merchandisers and storage cases, walk-in freezers and coolers (<3,000 sq. ft>), beverage vendors and dispensers, commercial ice makers, and water coolers.

Handbook Chapters

REFRIGERATION: Retail Food Store Refrigeration and Equipment

REFRIGERATION: Food Service and General Commercial Equipment

TC 10.8 – Refrigeration Load Calculations

Scope: TC 10.8 is concerned with the identification and compilation of the factors contributing to, and the development of, procedures for calculating refrigeration loads.

Handbook Chapters

REFRIGERATION: Refrigerated Facility Loads

Option 0 – Retain TCs, Re-organize Efforts

This approach keeps the TC's as they are currently known. Effort would be made to coordinate efforts for Programs, Research, and General ASHRAE information. This largely entails re-organizing the Conference Meetings so that intra-TC efforts can be shared. A sample meeting layout is below.

Section 10 Common Meeting. General ASHRAE information reviewed including information from Chair's Breakfasts, Deadlines for Handbook, Upcoming Program Deadlines, Report from Refrigeration Committee.

Sub meeting #1: TC 10 Program Subcommittee Chairs meet and coordinate Program ideas and Tracks

Sub meeting #2: TC 10 Research Subcommittee Chairs meet

TC Meetings to take place after this meeting to conduct formal business.

Option 1 – Combine TCs, End-Use Focused

This approach recognizes that people have industry-specific experience, knowledge and capitalizes on those working groups.

TC 10.A Industrial Refrigeration and Piping Systems

Scope: TC 10.A is concerned with the design, operation, safety and specification of industrial refrigeration systems and the associated system components, including sizing, insulation, oil carrying characteristics, and corrosion protection of refrigerant piping. This includes packaged industrial refrigeration systems and systems related to industrial heat recovery, heat pumping, and thermal energy storage.

Notes: Deleted the exclusion of secondary piping, given that single phase and volatile secondary circuits are increasingly important with increased use of ammonia, CO2 and A2L refrigerants. Heat recovery, heat pumping and thermal storage are added as these are essential to decarbonization and electrification – big future topics. With the advent of large packaged refrigeration systems (which need to be addressed somewhere and to some degree, and logically here) the name “Custom Engineered Refrigeration Systems” seemed less fitting. Changing to “Industrial Refrigeration Systems”, which also seems to be an easy-to-understand distinction from the “Commercial Refrigeration” TC. (This is TC 10.1, TC 10.3)

Handbook Chapters

REFRIGERATION: Halocarbon Refrigeration Systems

REFRIGERATION: Ammonia Refrigeration Systems

REFRIGERATION: Liquid Overfeed Systems

REFRIGERATION: Component Balancing in Refrigeration Systems

REFRIGERATION: Secondary Coolants in Refrigeration Systems

REFRIGERATION: Concrete Dams and Subsurface Soils

REFRIGERATION: Refrigeration in the Chemical Industry

REFRIGERATION: Cryogenics

REFRIGERATION: Ultralow-Temperature Refrigeration
REFRIGERATION: Biomedical Applications of Cryogenic Refrigeration
REFRIGERATION: System Practices for Carbon Dioxide Refrigerant
REFRIGERATION: Insulation Systems for Refrigerant Piping

TC 10.B Commercial Refrigeration

Scope: TC 10.B is concerned with the application and performance of equipment and systems for the refrigeration of food and beverages in commercial operations. This includes commercial equipment such as refrigerated merchandisers and storage cases, walk-in freezers and coolers (<3,000 sq. ft.), beverage vendors and dispensers, commercial ice makers, and water coolers.

Handbook Chapters

REFRIGERATION: Retail Food Store Refrigeration and Equipment
REFRIGERATION: Food Service and General Commercial Equipment

TC 10.C Refrigeration Applications

Scope: TC 10.C is concerned with the application of refrigeration systems for precooling, processing, manufacturing and storage of foods, beverages and other products, including the understanding and procedures for calculating design and hourly refrigeration loads, as well as system energy usage. This TC includes the application of equipment and systems for ice manufacturing and ice storage, as well as ice skating and curling rinks. This scope excludes walk-in freezers and coolers <3,000 sq. ft. and ice making systems less than five tons of ice per day.

Notes: Deleted “packaging”. Moved thermal storage systems to 10.A since TES is not an end-use application as much as a component of a general system design. Refrigeration loads is changed from just the design load to explicitly include the responsibility for how load varies and for energy usage, which means how system components perform. Changed from Refrigerated Applications to Refrigeration Applications. This is TC 10.2, 10.5, 10.8

Handbook Chapters

REFRIGERATION: Terminology of Refrigeration
REFRIGERATION: Refrigerated Facility Loads
REFRIGERATION: Ice Manufacture
REFRIGERATION: Ice Rinks
REFRIGERATION: Thermal Properties of Foods and Beverages
REFRIGERATION: Cooling and Freezing Times of Foods
REFRIGERATION: Cooling and Freezing Times of Foods
REFRIGERATION: Food Microbiology and Refrigeration
REFRIGERATION: Refrigerated-Facility Design
REFRIGERATION: Methods of Pre-cooling Fruits, Vegetables, and Cut Flowers
REFRIGERATION: Industrial Food-Freezing Systems
REFRIGERATION: Meat Products
REFRIGERATION: Poultry Products
REFRIGERATION: Fishery Products
REFRIGERATION: Dairy Products
REFRIGERATION: Eggs and Egg Products
REFRIGERATION: Deciduous Tree and Vine Fruit
REFRIGERATION: Citrus Fruit, Bananas, and Subtropical Fruit
REFRIGERATION: Vegetables
REFRIGERATION: Fruit Juice Concentrates and Chilled-Juice Products
REFRIGERATION: Beverages
REFRIGERATION: Processed and Prepared Foods
REFRIGERATION: Bakery Products
REFRIGERATION: Chocolates, Candies, Nuts, Dried Fruits, and Dried Vegetables

TC 10.D Transport Refrigeration

Scope: TC 10.D is concerned with the application of standard and special refrigeration equipment to all air, land, and sea transportation systems.

Handbook Chapters

REFRIGERATION: Cargo Containers, Rail Cars, Trailers, and Trucks
REFRIGERATION: Marine Refrigeration
REFRIGERATION: Air Transport

Option 2 – Combine TC’s, Fundamentals Focused

This approach recognizes that regardless of final application, the basics of behind the equipment design do not fundamentally change.

TC 10.A Refrigeration Loads and Profiles

Scope: TC 10.A is concerned with loads, including the understanding of product qualities, procedures for calculating design and hourly refrigeration loads, as well as system energy usage.

Handbook Chapters

REFRIGERATION: Terminology of Refrigeration
REFRIGERATION: Refrigerated Facility Loads
REFRIGERATION: Thermal Properties of Foods and Beverages
REFRIGERATION: Cooling and Freezing Times of Foods
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REFRIGERATION: Vegetables
REFRIGERATION: Fruit Juice Concentrates and Chilled-Juice Products
REFRIGERATION: Beverages
REFRIGERATION: Processed and Prepared Foods
REFRIGERATION: Bakery Products
REFRIGERATION: Chocolates, Candies, Nuts, Dried Fruits, and Dried Vegetables

TC 10.B Refrigeration Components and Piping

Scope: TC 10.B is concerned with the design, safety and specification of refrigeration system components, including sizing, insulation, oil carrying characteristics, and corrosion protection of refrigerant piping. This includes thermal energy storage components.

Handbook Chapters

REFRIGERATION: Insulation Systems for Refrigerant Piping
REFRIGERATION: Halocarbon Refrigeration Systems
REFRIGERATION: Ammonia Refrigeration Systems
REFRIGERATION: Liquid Overfeed Systems
REFRIGERATION: System Practices for Carbon Dioxide Refrigerant
REFRIGERATION: Component Balancing in Refrigeration Systems
REFRIGERATION: Secondary Coolants in Refrigeration Systems

TC 10.C Refrigeration Applications

Scope: TC 10.D is concerned with the specialized knowledge required to successfully design systems for specific end uses. This includes industrial systems, packaged systems, systems related to heat recovery, as well as those related to transportation systems and commercial refrigeration systems.

Handbook Chapters

REFRIGERATION: Concrete Dams and Subsurface Soils
REFRIGERATION: Refrigeration in the Chemical Industry
REFRIGERATION: Cryogenics
REFRIGERATION: Ultralow-Temperature Refrigeration
REFRIGERATION: Biomedical Applications of Cryogenic Refrigeration
REFRIGERATION: Refrigerated-Facility Design
REFRIGERATION: Ice Manufacture

REFRIGERATION: Ice Rinks
REFRIGERATION: Cargo Containers, Rail Cars, Trailers, and Trucks
REFRIGERATION: Marine Refrigeration
REFRIGERATION: Air Transport
REFRIGERATION: Retail Food Store Refrigeration and Equipment
REFRIGERATION: Food Service and General Commercial Equipment

END -----