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Minutes of Meeting No. 9
CSA/ICC B805 Joint Technical Committee on
Rainwater Collection System Design and Installation
June 7-8, 2017

Aquesta Bank Building
19510 Jetton Rd, Cornelius, NC, USA

Action Items		
No.	Action, Person Responsible, Report	Status, Due Date
AI.9.1	Shawn Martin to circulate public review resolutions to commenters	Complete
AI.9.2	Paul Gulletson to initiate CSA comprehensive edit, formatting, typesetting	Complete

Attendance					
Name	Affiliation	Day 1		Day 2	
		Pres	Abs	Pres	Abs
Voting members					
Philip Parisi (Co-Chair)	MG Engineering D.P.C., New York, NY	✓		✓	
Penh Tov (Co-Chair)	Interpump Supply Ltd., Fergus, ON	✓		✓	
Nick Ashbolt	University of Alberta, Edmonton, AB		x		x
Chris Despins	Connect the Drops, Toronto, ON	✓T			x
Pieter DeVries	UV Dynamics, London, ON	✓		✓	
Justin DeWitt	Illinois Department of Public Health, Springfield, Il	✓		✓	
Duncan Ellison	Cheffell Associates, Rockland, ON	✓		✓	
Russell Jackson	RainHarvest Systems, Pisgah Forest, NC	✓		✓	



Attendance					
Name	Affiliation	Day 1		Day 2	
		Pres	Abs	Pres	Abs
Judy MacDonald	Health Canada, Ottawa, ON	✓		✓	
Dean Morin	Alberta Municipal Affairs, Edmonton, AB		x		x
Ken Nentwig	Canadian Association for Rainwater Management (CANARM), Victoria, BC	✓T		✓T	
Robert M. O'Donnell	Aquanomix, LLC, Davidson, NC	✓		✓	
Doug Pushard	HarvestH2o.com, Santa Fe, NM	✓T		✓T	
Joe Rogers	Nova Scotia Municipal Affairs, Dartmouth, NS	✓		✓	
Nancy Springer	Butte County Department of Development Services, Oroville, CA	✓		✓	
Troy Vassos	Troy David Vassos Inc., North Vancouver BC	✓T		✓T	
Mike Warren	Watertronics, Hartland, WI		x		x
Alternates					
None					
Proxies					
None					
Associates					
Dave Cantrell	Seattle and King County, Everett, WA	✓		✓	
Jeffrey Hugo	National Fire Sprinkler Association, Essexville, MI		x		x
Linda Maley	Atlantis Water Management, Vancouver, BC		x		x
Robert Rubin	North Carolina State University, Pittsboro, NC	✓			x
Dana Schmidt	Steel Tank Institute, Lake Zurich, IL		x		x
Edward Van Giesen	BRAE Rainwater Technologies, St. Pauls, NC	✓		✓	
Guests					
David Crawford	Rainwater Management Systems, ARCSEA Board of Directors, Salem, VA	✓			x
Greg Davis	LIUNA, Washington DC	✓			x



Attendance					
Name	Affiliation	Day 1		Day 2	
		Pres	Abs	Pres	Abs
Chad Fournier	BRAE Rainwater Technologies, St. Pauls, NC	✓		✓	
Bert Van Duin	City of Calgary, Calgary, AB	✓T		✓T	
Neal Shapiro	American Rainwater Catchment Systems Association (ARCSEA), Santa Monica, CA		x		x
Tracy Santoro	BRAE Rainwater Technologies, St. Pauls, NC	✓		✓	
Tim Haley	Plumbers and Gasfitters L.U 5; ARCSEA Board of Directors, Washington DC	✓			x
Jonathan Garrick	Aquanomix, Davidson, NC	✓			x
CSA and ICC Staff					
Paul Gulletson	CSA Group, Toronto, ON	✓		✓	
Shawn Martin	ICC, Pittsburgh, PA	✓		✓	
Ed Wirtchorek	ICC, Country Club Hills, IL	✓		✓	

Notes:

(1) T indicates participation via teleconference and Webex

M.9.0 Call to Order and Opening Remarks

The Co-Chairs of the Joint Technical Committee (JTC), Penh Tov and Phil Parisi, welcomed the attendees and called the meeting to order at 8:40 am. on Day 1. On Day 2, the meeting was called to order at 8:45 am. The attendees introduced themselves and housekeeping comments were made.

M.9.1 Quorum

At the time of this meeting, the JTC had 17 voting members.

On Day 1, 14 members were present at the meeting and therefore minimum quorum requirements (at least 50% of the voting members) were met. A maximum of 14 votes could be cast at the meeting and the minimum number of affirmative votes required for carrying motions was the greater of:

50% of the voting membership: $1/2 \times 17 = 8.5 \rightarrow 9$, or
 2/3 of the votes cast: $2/3 \times 14 = 9.3 \rightarrow 10$.

On Day 2, 13 members were present at the meeting and therefore minimum quorum requirements (at least 50% of the voting members) were met. A maximum of 13 votes could be cast at the



meeting and the minimum number of affirmative votes required for carrying motions was the greater of:

50% of the voting membership: $1/2 \times 17 = 8.5 \rightarrow 9$, or
 2/3 of the votes cast: $2/3 \times 13 = 8.7 \rightarrow 9$.

M.9.2 Review and Adoption of the Agenda for the Meeting

The draft agenda was reviewed. Justin Dewitt moved to adopt a modified agenda for the meeting; Nancy Springer seconded the motion and it carried. A copy of the agenda can be found in the appendix.

M.9.3 Review and Adoption of the Minutes of the Previous Meeting

The minutes from Meeting No. 8, held on June May 10-12, 2016, in Brea, CA, were reviewed. Troy Vassos moved to adopt the previous meeting minutes; Joe Rogers seconded the motion and it carried.

M.9.4 Membership Review

The membership was reviewed. The following table shows the JTC matrix and membership by category.

CSA/ICC B805 JTC Voting Matrix		
General/Regulatory Interest (G)	Producer Interest (PI)	User Interest (UI)
Min: 6, Max: 6	Min: 6, Max: 6	Min: 6, Max: 6
1) Nancy Springer	1) Russell Jackson	1) Nick Ashbolt
2) Justin DeWitt	2) Ken Nentwig	2) Chris Despins
3) Dean Morin	3) Robert M. O'Donnell	3) Duncan Ellison
4) Judy MacDonald	4) Ms. Penh Tov	4) Philip F. Parisi
5) Joe Rogers	5) Pieter DeVries	5) Doug Pushard
6) TBD	6) Mike Warren	6) Troy Vassos

M.9.4.1 Membership Changes Since the Last Meeting

- New voting members:



- Dean Morin, Alberta Municipal Affairs, Edmonton, AB
- New associates:
 - Dave Cantrell, (retired from Seattle and King County)
- Former voting members:
 - Dave Cantrell (retired from Seattle and King County)
 - Alf Durnie, Alberta Municipal Affairs

ICC and CSA staff will look into options for filling the vacant seat in the G category in compliance with both the ANSI and SCC procedures.

M.9.5 Review of Project Schedule

Shawn Martin led a discussion of the overall project schedule and next meetings. It is worthwhile highlighting the following milestones:

- Feb 10-11, 2015: **Meeting 6 (face-to-face)** to develop draft and work on content for Public Review.
- June 23-25, 2015: **Meeting 7 (face-to-face)** to finalize content for Public Review.
- July 2015: Release draft for first public review and comment (60 days)
- May 10-12, 2016: **Meeting 8 (face-to-face)** to review and resolve PR 1 comments
- June 2016: Release draft for second public review and comment* (45 days)
- **Meeting 9** to review and resolve PR 2 comments
- Comprehensive edit and formatting of the draft by CSA Editorial Services
- Release draft for third public review and comment* (45 days)
- Launch CSA and ICC final ballots concurrent with third public review (30 days)
- **Meeting 10** (teleconference) to review and resolve PR 3 comments
- CSA Editorial Services final production (assuming no technical changes from third public review)
- Publication

Shawn noted the differences between CSA and ICC processes, particularly how ICC's ANSI process requires that any changes to the draft be offered for public review until no further comments are received.

M.9.6 Report on Action Items

Completed action items are as follows:



Completed Action Items		
No.	Action, Person Responsible, Report	Status, Due Date
AI.8.4	<p><u>Penh Toy</u> to develop an annex for site assessment and a water safety plan, including best design practices.</p> <p>Jun. 24/16 report: Action item is ongoing. It was clarified that the intent of the action item is to develop best-management practices.</p>	Complete
AI.8.7	<p><u>Abraham I. Murra</u> to change all units in the standard to SI as primary with U.S. customary (yard/pound) in parentheses.</p> <p>Jun. 24/16 report: Most unit conversions were incorporated in the latest draft; however, additional technical input will be required from committee members for converting the units in Annexes C and D. The action item will remain open throughout the development of the draft.</p> <p>Jul. 5/16: Abraham Murra will communicate with Chris Despina to revise the units in Annex D.</p>	Complete
AI.8.11	<p><u>Penh Toy</u>, <u>Nick Ashbolt</u>, <u>Duncan Ellison</u>, <u>Russ Jackson</u>, and <u>Troy Vassos</u> to revise Annex E, including creating a flowchart based on the one from DDOE 2013.</p>	Complete
AI.1.7	<p>Seek participants for task forces from stormwater industry, experts (Justin DeWitt – MWRD, Shawn Martin – NOWRA, EPA)</p> <p>Report: Rob Rubin, Bert Van Duin, Neal Shapiro recruited and participating in task forces. Shawn has Justin Dewitt's report. Chris reached out to some staff at Credit Valley Conservation but no response yet.</p> <p>Report: No responses from these individuals. Ongoing.</p> <p>Report Nov/14: Open</p> <p>Report Dec/14: No report</p> <p>Report Feb/15: Dan Nourian from NDS volunteered to assist in the area of system design for ground-level capture.</p> <p>Report May/16: Progressing</p> <p>Report Jun/17: No progress, the action item will be closed.</p>	Complete
AI.6.5	<p>Judy McDonald to obtain chlorine and chloramine thresholds and address contact time.</p> <p>Report May/16:</p>	Complete
AI.6.6	<p>Duncan Ellison to create advisory note for Section 11.1.5 to suggest that some level of pre-treatment occur prior to the tank when there is the potential for elevated water temperatures.</p>	Complete



Completed Action Items		
No.	Action, Person Responsible, Report	Status, Due Date
AI.7.3	Need operations section in standard or delete “operations” from the scope. Should include ongoing monitoring and maintenance of system and follow up on water safety plan after the system is installed.	Complete
AI.7.5	Judy MacDonald to look into monitoring UVT Report Jun/17: Judy determined to allow the AHJ to approve anything other than NSF 55 unit.	Complete

M.9.7 Overview of Procedure for Responding to Public Review Comments

At the beginning of the meeting, Shawn Martin explained relevant details of the development process for CSA/ICC B805 and clarified the rights of the different participants.

M.9.8 Review and Discussion of the Public Review Comments

Justin Dewitt moved to accept ICC/CSA staff recommendations for the resolution of all comments that were deemed editorial in nature. Judy MacDonald seconded the motion and it carried.

The committee agreed to defer the review of comments that were deemed out of scope and that did not provide specific language to the end of the meeting.

Per the modifications made to the agenda, the committee invited Mr. David Crawford, current President of the Board for the American Rainwater Catchment Systems Association (ARCSA) to offer his comments on the Second Public Comment Draft. Mr. Crawford had previously contacted the staff secretariats requesting the opportunity to address the committee during the committee meeting.

David Crawford, representing ARCSA, addressed the committee members and made the following comments:

- ARCSA wishes to support the standard, however they want to be able to use water without chlorine residual for spray irrigation applications. He noted that golf courses regularly irrigate with water that has no chlorine residual, for example.
- ARCSA is concerned about the requirements for chlorine residual currently found in the draft standard. The concern is that these requirements are too stringent and are unnecessary to protect public health.
- ARCSA is concerned about chlorine residual for water stored above 25 °C. He stated that there are other ways to prevent growth of pathogens in stored water other than chlorine.
- He proposed to strike the requirement for a chlorine residual for Tier 3 spray irrigation only.

Russ Jackson noted the following:



- Working with chlorine as a system operator potentially creates a greater health risk than the harvested rainwater itself without residual.
- Chlorine in high concentrations can be toxic to operators, especially in the absence of proper training.
- 65 percent of households in Germany use RWH around the home and irrigate with no disinfection. In Australia, 35 percent of households use rainwater without disinfection and residual.
- UV point-of-use equipment could be used as an alternative to treat the water.
- Chlorine disinfection is not necessarily easier to operate for a rainwater harvesting system.

Doug Pushard noted that chlorine buildup can be detrimental to plants.

Phil Parisi mentioned that the document is not intended for use in agricultural applications.

Bob Rubin noted the following:

- There could be involuntary exposure to harvested rainwater in parks or golf courses. Voluntary exposure occurs when the water is used privately.
- Proper disinfection is critical. It has eliminated more disease than all other medicine.
- Chloride can damage plant life, but chlorine residual water has been used for many years.

Upon completion of the discussion, Shawn Martin noted that the verbal comments offered could not be submitted as formal comments by a non-committee member since the second public comment period had closed on January 2, 2017. However, he noted that any IS-RCSDI committee member was welcome to make a motion at any time during the meeting to make any changes to the draft. He also indicated that the verbal comments offered could be considered as the committee considered resolutions to the qualified comments submitted during the second public comment period. The committee then resumed the consideration and discussion of the qualified comments.

All of the non-editorial public review comments received during the second round of public review were discussed and each resolution was voted on by the committee. See the resolutions to the comments in the appendix. A motion was made, seconded and approved to disapprove all comments outside of the scope of the Second Public Comment Draft and all comments where no proposed language changes were provided.

M.9.9 Approval of the Draft for the Second Public Review

It was noted that, because of the changes made to the CSA/ICC B805 draft as a result of the public review comment resolution, and in accordance with ICC's ANSI-accredited standards development process, the approved substantive changes will be offered for a third public review. During that public comment period, comments will only be accepted on those provisions that were subject to substantive (non-editorial) changes. It was not necessary to hold a formal vote to release the draft for public review since a motion was held to approve each public review comment resolution.

M.9.10 New Business



Penh Tov proposed revisions to the terminology in Table 5.1 to correspond with WSP Table E.1 Risk Matrix as follows:

- Change title to reflect that it is the “likelihood of exposure”.
- Use terms Rare, Unlikely, Possible, Likely, and Certain.

The committee agreed to these changes.

M.9.11 Next Steps, Timing, Date and Location of Next Meeting

The next meeting was not scheduled at this time. The date will be determined once the public review opening and closing dates are determined.

M.9.12 Closing Remarks and Adjournment

Meeting 9 of the CSA/ICC JTC adjourned at 5:10 pm. on Day 1, resumed at 8:45 am on Day 2, and adjourned at 2:45 pm on Day 2.



Appendix A

Public Review No. 2 Comments and Resolutions



Appendix B

Task Forces



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
2014 Projects		
RWH-14-01 Storage sizing	Chris Despins (Chair) Justin Dewitt Jeff Hugo Russ Jackson Doug Pushard Joe Rogers Nancy Springer Penh Tov	<ul style="list-style-type: none"> • Apr/14: New project to investigate storage sizing. Include firefighting concerns (see Hawaii, p., 45). Sizing for water storage (short/long term, water efficiency target, fire reserve, etc), sizing for stormwater management (volume target, draw-down rate, mass balance). Yield coefficients. Reliability. • Jun/14: Action items: Add day tank sizing, Demand calculations (informative), Tank sizing methodologies (informative), System supply calculation (informative) • Aug/14: Action items: Add sizing for firefighter reserve, referencing NFPA standards, add provisions for stormwater treatment/storage. • Nov/14: No update. • Dec/14: Chris Despins, who was not in attendance, provided an interim draft in advance. He invited comments and plans to submit text for inclusion in the working draft prior to the next meeting. • Feb/15: Chris Despins to review sizing material as reflected in the latest draft. • May/16: The draft on Annex D on storage sizing was left out of the first public review draft. It was reworked and incorporated into the draft for the second public review. At the same time, Chris Despins evaluated the public review comments on the subject of storage sizing to develop proposed responses. Chris Despins developed a revised Annex D that was incorporated into the draft for the second public review. • Jun 2017: The task force evaluated the public review comments on the subject of system components and design and developed proposed responses for committee review.



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
RWH-14-02 Water quality (source and output)	Russ Jackson (Co-chair) Penh Tov (Co-chair) Dave Cantrell Chris Despins Pieter Devries Duncan Ellison Khosrow Farahbakhsh Wayne Galliher Judy MacDonald Linda Maley Ken Nentwig Rob O'Donnell Robert Rubin Nancy Springer Troy Vassos Mike Warren	<ul style="list-style-type: none"> • Apr 2014: New project to investigate treated water quality (output), applications, and end use. Categorize by application/use. Data centre cooling, cooling tower makeup, landscape irrigation (surface/subsurface), toilet/urinal flushing, pool/spa fill, hose bibbs, vehicle washing, trap priming, automatic fire sprinklers, clothes washing • June 2014: Merge with Source Water Quality Group, scope revised to include both source and output waters. • August 2014: Refine usage tiers, combining evaporative cooling with non-potable, human contact applications. Review use of e. Coli as an indicator microorganism, seek input from microbiologists on criteria for usage tiers. • Nov 2014: Review usage tiers with water quality. • Dec 2014: Russ Jackson indicated the task force would take into account the feedback received at the ARCSA conference and would meet again soon to get back on track. There is the Water Safety Plan approach, different inputs on thresholds. Boiling those ideas into single document is the challenge. If we do this, it may make what we've already done irrelevant. • Feb 2015: Alf Durnie and Task Force to review water quality threshold levels in 11.1.3 with water quality experts. • May 2016: The task force evaluated the public review comments on the subject of water quality and developed proposed responses for committee review. • Jun 2017: The task force evaluated the public review comments on the subject of system components and design and developed proposed responses for committee review.
RWH-14-04	Doug Pushard (Chair) Chris Despins	<ul style="list-style-type: none"> • Apr 2014: New project to investigate control systems and design. Include safety, listings



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
Control systems and design	Pieter Devries Ken Nentwig Rob O'Donnell Mike Warren	<ul style="list-style-type: none"> • June 2014: The task force met and developed a draft framework for the section. The group also focused on a definition for control. The TC discussed controls for fire suppression systems, which the task force will look into further in their work. • August 2014: Action items: Convert approach to code text and locate appropriate provisions for each. • Nov 2014: Action items: Draft provisions for Section 10, establish approach for residential vs. commercial. • Dec 2014: Task force continues to refine the point-of-use water quality criteria and is investigating a prescriptive set of criteria to use as an alternate for smaller residential systems. • Feb 2015: Task force to consolidate and simplify controls provisions with more emphasis on performance requirements. Additional information needed on ozone disinfection system controls. • May 2016: The task force evaluated the public review comments on the subject of controls and developed proposed responses for committee review. • Jun 2017: The task force evaluated the public review comments on the subject of system components and design and developed proposed responses for committee review.
RWH-14-06 System components design and materials and Tanks Subgroup	Dave Cantrell (Chair) Dana Schmidt (Chair) Alf Durnie Judy MacDonald Phil Parisi Joe Rogers <i>Mark Falgatter</i> <i>Dan Nourian</i> <i>Shawn Strausbaugh</i>	<ul style="list-style-type: none"> • Apr 2014: Outlined, but not started. • June 2014: New project to address collection systems, piping, tanks, etc. Merge in backflow and cross-connection control. • August 2014: Action items: Continue to review language, incorporating information from other sources. Setup sub-groups to address specific issues such as tanks as needed. Review and refine committee feedback from Meeting #3.



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
		<ul style="list-style-type: none"> • Nov 2014: Action items: Continue to review, revise and draft language. Initiate work of new sub-groups (the working group on tanks led by Dana Schmidt was activated). • Dec 2014: Task force continues to develop and refine the text for system components based on committee feedback and resource documents. Sub-group for tanks headed by Dana Schmidt is working to develop text specific to tanks using CSA B126 and IPC material to begin. • Feb 2015: Revision and consolidation of tank materials for placement in a separate annex. Create generic system component terms for consistent usage throughout the document. Develop consistent terminology for the indication of third-party certification vs. conformance for first party. • May 2016: The task force evaluated the public review comments on the subject of system components and design and developed proposed responses for committee review. • Jun 2017: The task force evaluated the public review comments on the subject of system components and design and developed proposed responses for committee review.



**CSA
Group**



Appendix C

Agenda for the Meeting



International Code Council and Canadian Standards Association

BSR/CSA/ICC 805-201x Standard for Rainwater Harvesting Systems

MEETING #9 AGENDA (DRAFT): JOINT CONSENSUS COMMITTEE ON RAINWATER COLLECTION SYSTEM DESIGN AND INSTALLATION (IS-RCSDI)

<u>Date</u>	<u>Meeting Location</u>	<u>Secretariats:</u>
June 7, 2017, 8:30 AM - 5:00 PM EDT June 8, 2017, 8:30 AM - 3:00 PM EDT	Aquesta Bank Building 19510 Jetton Road Cornelius, NC 28031 USA	Paul Gulletson , CSA Shawn Martin , ICC

AGENDA

1. Meeting Opening
 - a. Opening Remarks, objective of the meeting, and housekeeping (Chairs, Shawn/Paul)
 - b. Quorum and Membership review (Shawn/Paul)
 - c. Review of agenda for meeting (Chairs)
 - d. Review and adoption of [minutes from Meeting #8](#) (Chairs)
 - e. Review of membership (Chairs)
 - f. Project schedule review (Shawn/Paul)
 - g. Report on Action Items (Shawn/Paul)
2. Overview of Procedure for Responding to Public Review Comments (Shawn/Paul)
3. Review/Discussion of Editorial Comments Received on Second Public Review Draft (Shawn/Paul)
4. Review/Discussion of Qualified Comments Received on [Second Public Review Draft](#)
5. Review/Discussion of Other Comments Received on [Second Public Review Draft](#)
6. New Business
7. Scheduling of Next Meeting
8. Closing Remarks and Adjournment