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Final Minutes of Meeting No. 3
CSA/ICC B805 Joint Technical Committee on Rainwater Collection
System Design and Installation
Tuesday and Wednesday, June 17-18, 2014
 Jaros Baum and Bolles, 80 Pine Street, New York City, NY USA
Contents

Action Items

Attendance List

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- M.1.5 Report on outstanding action items
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- M.7.0 Adjourn

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Action Items		
No.	Action, Person Responsible	Status, Due Date
AI.3.1	Reorder the draft working document to correspond to the flow of water through a typical system, i.e. from source to point of use. (Shawn Martin)	NEW, ASAP
AI.3.2	Obtain paper from Dennis Lye entitled "Water Quality in Cisterns". (Shawn Martin)	NEW, ASAP
AI.3.3	Determine whether it is possible to upload a document to the COA by means of e-mail. (Paul Gulletson)	NEW, 11/5/2014
AI.3.4	Review appropriate indicator organisms for rainwater with water quality experts. (Shawn Martin)	NEW, 11/5/2014



AI.3.5	Seek permission to provide NFPA 13, 13R, 13D, 14, 20, 22 and 1142 standards to the committee for review and reference. (Shawn Martin)	Ongoing, ASAP
A1.3.6	Research costs, availability and meeting locations for Meeting #4 to be held in Victoria, BC in October, 2014.	NEW, ASAP



Name	Affiliation	Day 1		Day 2	
		Pres	Abs	Pres	Abs
Voting members					
Alf Durnie (Co-Chair)	Alberta Municipal Affairs, Edmonton, AB	✓		✓	
Philip F. Parisi (Co-Chair)	Jaros Baum & Bolles Consulting Engineers, New York, NY	✓		✓	
Dave Cantrell	Public Health-Seattle & King County, Seattle, WA	✓		✓	
Justin DeWitt	Illinois Department of Public Health, Springfield, IL	✓		✓	
Russell Jackson	RainHarvest Systems, Cumming, GA	✓		✓	
Robert M. O'Donnell	Aquanomix, LLC, Davidson, NC	✓			✓
Doug Pushard	HarvestH2o.com, Santa Fe, NM	✓(T)		✓(T)	
Nancy Springer	Butte County Dept. of Development Services, Oroville, CA	✓		✓	
Mike Warren	Watertronics, Hartland, WI	✓		✓	
Chris Despins	Credit Valley Conservation, Mississauga, ON		✓		✓
Pieter DeVries	UV Dynamics, London, ON	✓		✓	
Duncan Ellison	Cheffell Associates, Rockland, ON	✓		✓	
Khosrow Farahbakhsh	University of Guelph, Guelph, ON		✓		✓
Judy MacDonald	Health Canada, Ottawa, ON		✓		✓
Ken Nentwig	Canadian Association for Rainwater Management (CANARM), Victoria, BC	✓		✓	
Joe Rogers	Ontario Ministry of Municipal Affairs and Housing, Toronto, ON	✓(T)		✓(T)	
Penh Tov	Green Turtle Technologies, Ltd, Mississauga, ON	✓(T)		✓(T)	
Total Voting Members:		13		12	
Alternates					
Associates					
Reuben Butterfield	RHo Solutions, Victoria, BC		✓		✓
Wayne Galliher	City of Guelph, Guelph, ON		✓		✓
Jeffrey M. Hugo	National Fire Sprinkler Association, Essexville, MI		✓		✓
Glenn MacMillan	Toronto and Region Conservation Authority, Woodbridge, ON		✓		✓
Linda Maley	Atlantis Water Management, Vancouver, BC		✓		✓
Zachary May	Ministry of Natural Gas Development & Responsible for Housing, Victoria, BC		✓		✓
Anthony Oosterveld	VIQUA - a Trojan Technologies Company, Guelph, ON		✓		✓
Robert Rubin	Pittsboro, NC		✓		✓



Troy Vassos	Golder Associates Ltd, Burnaby, BC		✓		✓
Guests					
Arthur Cordes	New York City Department of Building, NY, NY		✓	✓	
Cary Etter	Xerxes Corporation, Abilene, TX	✓(T)		✓(T)	
CSA/ICC Staff					
Shawn Martin	ICC, Pittsburgh, PA	✓		✓	
Paul Gulletson	CSA Group, Mississauga, ON	✓		✓	
Ed Wirtschoreck	ICC, Country Club Hills, IL		✓		✓
Franco DiFolco	CSA Group, Mississauga, ON	✓		✓	

Notes:

(1) Individuals with ✓(T) participated via teleconference and web conference.

M.1.0 Call to Order

Co-chairs Alf Durnie and Phil Parisi welcomed the committee members and associates and called the meeting to order at 8:44 AM. Members introduced themselves and housekeeping comments were made.

M.1.1 Quorum

At the time of this meeting, the Joint Technical Committee (JTC) had 17 voting members.

On day 1, 13 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 approvals was the greater of:

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

On day 2, 12 were present at the meeting and therefore minimum quorum requirements (at least 50% of the voting members) were met. A maximum of 12 votes could be cast at the meeting and the minimum number of affirmative votes required for approvals was the greater of:

More than 50% of the voting membership: $1/2 \times 17 = 8.5 \rightarrow 9$, or
 2/3 of the votes cast: $2/3 \times 12 = 8$ if all votes were cast

M.1.2. Approval of the agenda for the meeting

David Cantrell moved to adopt the agenda for the meeting; Mike Warren seconded the motion and it was carried unanimously. A copy of the agenda can be found in Appendix C.

M.1.3 Approval of the minutes of last meeting

Duncan Ellison moved to adopt the minutes of Meeting No. 2 held on June 17-18, 2014 at the CSA offices in Mississauga, ON; Pieter DeVries seconded the motion and it was carried unanimously.



M.1.4 Membership review

At the time of this meeting, the JTC matrix was balanced; therefore, the committee could make formal, binding decisions and cast votes. The following table shows the JTC matrix and membership by category:

CSA/ICC B805 JTC Matrix & Membership		
General/Regulatory Interest (G)	Producer Interest (PI)	User Interest (UI)
Min: 6, Max: 6	Min: 6, Max: 6	Min: 6, Max: 6
1) Dave Cantrell	1) Russell Jackson	1) Chris Despins
2) Justin DeWitt	2) Ken Nentwig	2) Duncan Ellison
3) Alf Durnie	3) Robert M. O'Donnell	3) Khosrow Farahbakhsh
4) Judy MacDonald	4) Ms. Penh Tov	4) Philip F. Parisi
5) Joe Rogers	5) Pieter DeVries	5) Doug Pushard
6) Nancy Springer	6) Mike Warren	6) Vacant

The committee was updated on efforts to fill the open User Interest seat. Shawn Martin reported that applications had been solicited from interested parties in the User Category. The applications would be processed by the ICC Codes and Standards Committee, and with their recommendations forwarded to the ICC Board of Directors who would make the appointment at their meeting on September 28, 2014.

M.1.5 Report on outstanding action items

Outstanding Action Items		
No.	Action, Person Responsible, Report	Status, Due Date
A2.1.1	Seek permission to provide NFPA 13, 13R, 13D, 14, 20, 22 and 1142 standards to the committee for review and reference. (Shawn Martin) Report: Requests were submitted to NFPA for complimentary copies of the standards for committee use, Associate Member Jeff Hugo is assisting.	Ongoing, 11/5/2014
A2.1.2	Provide 2015 IFC, IPC, IMC and 2012 IgCC codes to the committee for review and reference. (Shawn Martin) Report: Coupons provided to committee members for the download of the 2015 IPC. Others provided as needed.	COMPLETED



A2.1.3	Provide the Canadian Recreational Water Guidelines to the Water Quality TF (Judy MacDonald) Report: Completed.	COMPLETED
A2.1.4	Provide the Canadian Well Water Standard to the committee for review and reference. (Shawn Martin) Report: Completed.	COMPLETED
A2.1.5	Provide the current public draft of ASHRAE 188 to the committee for review and reference (Judy MacDonald) Report: Completed.	COMPLETED
A2.1.6	Insert Working Draft #5 from the Tank Sizing Task Group into the working draft of the standard (Shawn Martin). Report: Completed.	COMPLETED
A2.1.7	Contact ARCSEA to discuss the potential for holding Meeting #4 during or adjacent to the ARCSEA Annual Conference in Phoenix. (Shawn Martin) Report: Completed.	COMPLETED

M.2.0 Review of CSA Community of Interest Website

CSA Secretariat Paul Gulletson reviewed the CSA Community of Interest Website with the committee members. He instructed them on the use of the site and the proper setup of notifications to be made aware of new document and posting submissions.

M.3.0 Task Force Report, Discussion and Committee Feedback

Chairman Alf Durnie kicked off discussions on Task Force activities since the last meeting, inviting each group to report on activities, challenges, and next steps.

M.3.1 Controls Task Force

Task Force chair Doug Pushard reviewed progress of the work conducted by the group since the last meeting. He provided a spreadsheet describing an approach on controls that utilizes the categories of water use to establish minimum control requirements. It was noted that the categories did not align with the current categories established by the Source Water Task Force, and that the two groups would coordinate the two. The group also discussed whether a separate controls section in the document was required. After some discussion, it was agreed that controls provision would be integrated into other sections of the document as appropriate, without a dedicated controls section. Mr. Pushard outlined an approach utilizing a decision-making construct to determine whether a given section would require minimum control provisions. Mr. Warren indicated that the approach was to establish the desired outcome rather than the specific device. They planned to work to codify this approach with text for inclusion in the draft as a next step.

M.3.2 Water Quality Task Force

Task Force chairs Russ Jackson and Penh Tov summarized the work of the task force and the usage tiers and criteria established. He also indicated a need to refer back to manufacturer requirements to address application-specific requirements (e.g. evaporative cooling) in addition



to minimum performance criteria. While original plans were to create a separate criteria for evaporative cooling or specialty use, Mr. Jackson proposed that it may be possible to simply include it in the Non-Potable, Human Contact tier. The consensus of the committee appeared to support that approach. There was also a discussion on the use of a specified maximum contaminant level (MCC) or a difference (log reduction). It was generally agreed that the absolute approach was needed since the use of a difference depends on a known baseline, which could be somewhat variable for rainwater. Mr. Jackson indicated that the group would continue to work to refine the tiers and refine their draft text in the working draft document.

M.3.3 System Components Design and Materials

Chair David Cantrell described the work of the System Components Task Force, the newest group to be setup. Mr. Cantrell indicated that he had collected the relevant material from CSA B128.3, B126.1 and the IPC into a comparison document. Mr. Cantrell and the group worked then to blend the provisions into a single document, which Mr. Martin then integrated into the working document for the consideration of the committee. Mr. Cantrell noted that this was merely a starting point, and that other sources of information were possible and appropriate. He also called attention to the importance of the definitions.

M.4.0 Detailed Review of Working Document

The committee, led by the chairs, then began the process of reviewing the working draft sequentially. The results of that discussion are captured in the working draft of the document as revisions and areas for further development by the responsible task forces. Several notable points of discussion are summarized below.

- **Scope.** Duncan Ellison raised questions with regard to the scope of the document, suggesting that it should be inclusive of industrial processes and limitations on agricultural processes should be limited to “commercial agriculture.” The committee accepted the change to agriculture, but not to industrial processes.
- **Potable Rainwater Systems.** The group discussed the requirements for systems supplying potable water to be comprised of components certified to NSF 61. While it was agreed that add components delivering treated water must be certified to the standard, it was also unnecessary and impractical for roofing material to meet the standard. After some discussion, the consensus was that for potable systems, storage tanks and everything downstream must be certified to NSF 61 to protect the water quality.
- **Order.** The committee discussed the appropriate order of the sections in the document, and determined that the document should address the components in the order of the system. Shawn Martin was tasked with reordering the document after the meeting.
- **Day Tanks.** There was a discussion on whether a more generic term for these devices should be used, and whether provisions should be added addressing their use. A draft definition for day tanks was also developed.
- **Warning Signs.** The group discussed the need for other languages on warning signs. In response, the group agreed to add a note with the equivalent language in French and Spanish at a minimum.
- **Design Submittals.** Language requiring submission of system designs for approval prior to installation was discussed and added.



- Setbacks. The required setback from various elements and rainwater tanks was refined to resolve differences and conflicts between US codes and Canadian standards, and to accommodate different tank designs and configurations.
- Algae Control. The provisions requiring that tanks located aboveground be protected from direct sunlight were reviewed. Per the suggestion of Doug Pushard, an exception was added for tanks exclusively serving non-potable non-contact end uses.

While the agenda originally called for Task Force breakout sessions, the committee agreed that continued review of the working draft was a better use of time, and chose to forgo breakout sessions. The review of the working document concluded on the second day of the meeting at Section 9, Input Source Water.

M.5.0 Review of Schedule

The co-chairs then lead a discussion of the overall project schedule and next meetings. After some discussion the following rough, revised schedule was agreed upon.

- **October 2014: Meeting #4**
- November 27, 2014: Release draft for Public Review and Comment – round 1 (60 days)
- Feb 2015: **Meeting #5** to address Public Review comments
- Mar 2015: Release draft for Public Review and Comment – round 2* (45 days)
- Apr 2015: Comprehensive edit formatting of the draft by CSA Editorial Services
- Jun 2015: 30-day ballot to approve the standard
- Jul 2015: **Meeting #6** to resolve ballot
- Aug 2015: Draft submitted to CSA Editorial Services for final production
- Sep 2015: Publication

**Note: ICC's ANSI process requires any changes to the draft to be posted to public review until no further comments are received. It is anticipated that at least two rounds of public review will be required.*

M.6.0 Date and Location of Next Meeting

The committee discussed locations and dates for the fourth meeting and settled on October 22, 23, 2014. It was agreed that since meetings to date had been held on the East Coast and Midwest, the next meeting should be held on the West Coast to accommodate committee members in that region. Since the next meeting is due to be held in Canada, Alf Durnie suggested Victoria, BC where numerous CSA meetings have been held successfully in the past. He cited the reasonably priced accommodations at the Swans Hotel and the proximity of potential donated meeting space. Paul Gulletson was charged with researching availability and costs.

M.7.0 Adjourn

Upon completion of scheduling, the chairs invited a motion to adjourn on Day 2. The meeting adjourned at 2:08 PM EDT .

CSA/ICC B805 Joint Technical Committee on Rainwater Collection System
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Minutes of Meeting No. 1; held on April 9-10, 2014
Issued: May 27, 2014
CSA File: B227-23
ICC File:



Appendix A

Task Force Open Projects



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
2014 Projects		
<p><u>RWH-14-01</u></p> <p>Storage sizing</p>	<p>Chris Despins (Chair) Nancy Springer Joe Rogers Penh Tov Russ Jackson Jeff Hugo Justin Dewitt Doug Pushard</p>	<ul style="list-style-type: none"> • Apr 2014: 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. • June 2014: Action items: Add day tank sizing, Demand calculations (informative), Tank sizing methodologies (informative), System supply calculation (informative) • August 2014: Action items: Add sizing for firefighter reserve, referencing NFPA standards, add provisions for stormwater treatment/storage.
<p><u>RWH-14-02</u></p> <p>Water quality (source and output)</p>	<p>Russ Jackson (Co-chair) Penh Tov (Co-chair) Mike Warren Rob O'Donnell Pieter Devries Chris Despins Judy MacDonald Dave Cantrell Duncan Ellison Wayne Galliher Ken Nentwig Robert Rubin Nancy Springer Khosrow Farahbakhsh Linda Maley</p>	<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.
<p><u>RWH-14-03</u></p> <p>Source water quality (input)</p>	<p>Penh Tov (Chair) Rob O'Donnell Dave Cantrell Nancy Springer Chris Despins Wayne Galliher</p>	<ul style="list-style-type: none"> • Apr 2014: New project to investigate source water quality (input). Characterize stormwater/rainwater differentiation. Solidify definitions. Integrate stormwater control, rainwater reuse.



Open Task Force (TF) Projects — CSA/ICC B805 JTC		
Project No. & Title	Task Force (TF) Members	Mandate, Actions, Status
	Khosrow Farahbakhsh Robert Rubin Linda Maley	<ul style="list-style-type: none"> • June 2014: Merge with Treated Water Quality. Closed.
<u>RWH-14-04</u> Control systems and design	Doug Pushard (Chair) Mike Warren Pieter Devries Ken Nentwig Chris Despins Rob O'Donnell	<ul style="list-style-type: none"> • Apr 2014: New project to investigate control systems and design. Include safety, listings • 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.
<u>RWH-14-05</u> Working draft outline	Shawn Martin Paul Gulletson Phil Parisi Alf Durnie	<ul style="list-style-type: none"> • Apr 2014: New project to develop a framework for the initial working draft standard. • June 2014: A draft outline for the standard was developed showing the proposed high-level clause structure. The document is to become the working draft standard as the task forces begin to write requirements. The draft was sent to members prior to the meeting. The project is complete, and the task force was disbanded.
<u>RWH-14-06</u> System components design and materials	Dave Cantrell Alf Durnie Judy MacDonald Phil Parisi Joe Rogers	<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.

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Appendix B

Committee Member Coordinates

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Appendix C

Agenda for the Meeting