Minutes of Meeting No. 4
CSA/ICC B805 Joint Technical Committee on Rainwater Collection System Design and Installation
Wednesday, November 5, 2014
Teleconference and Web

Contents

Action Items		
No.	**Action, Person Responsible**	**Status, Due Date**
AI.4.1	Determine ability of the committee to submit changes to the IPC and IRC for the 2018 code cycle (Shawn Martin)	NEW, ASAP
AI.4.2	Paul to initiate a poll to determine location of the next fact-to-face meeting (Vancouver or Victoria)	NEW, ASAP
AI.4.3	Paul to initiate a poll to determine the date of the next face-to-face meeting (to take place in February 2015)	NEW, ASAP
AI.4.4	Paul to initiate a poll to establish a date for a teleconference to identify IPC code changes to align with our standard.	NEW, ASAP
AI.4.5	All task forces to begin to gather proposed changes to put forth as code changes to the IPC code to align it with the relevant sections in our draft standard	NEW, before early Jan 2015 teleconference
AI.4.6	Shawn Martin to review appropriate indicator organisms for rainwater with water quality experts (e.g. Dennis Lye, Nick Ashbolt, Robert Rubin and Water Quality TF).	NEW, ASAP

Name	Affiliation	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	✓	
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	✓	
Penh Tov	Green Turtle Technologies, Ltd, Mississauga, ON		✓
Troy Vassos	Water Treatment Group, Golder Associates Ltd, Burnaby, BC	✓	
	Total Voting Members:	**14**	**4**
Alternates			
Associates			
Nick Ashbolt	University of Alberta, Edmonton, AB	✓	
Reuben Butterfield	RHo Solutions, Victoria, BC		✓
Wayne Galligher	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	North Carolina State University, Pittsboro, NC	✓	
Guests			
Mihailo Mihailovic	NBC Part 9 - Housing and Small Buildings Canadian Codes Centre | NRC Construction, National Research Council Canada	✓	
Diane Green	Canadian Codes Centre NRC Construction, National Research Council of Canada	✓	
Bert Van Duin	City of Calgary, Calgary, AB	✓	
James Little	Student, Executive Intern, Lake Stevens, WA	✓	
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		✓
Vicki Worden	ICC, Maine	✓	

Notes:
(1) *All individuals participated via teleconference and web conference.*

M.4.0 Call to Order

Co-chairs Alf Durnie and Phil Parisi welcomed the committee members and associates and called the meeting to order at 11 AM EST. Members introduced themselves and housekeeping comments were made.

M.4.1 Quorum

At the time of this meeting, the Joint Technical Committee (JTC) had 18 voting members; 14 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 approvals was the greater of:

More than 50% of the voting membership: $1/2 \times 18 = 9 \rightarrow 10$, or
2/3 of the votes cast: $2/3 \times 14 = 9.3 \rightarrow 10$ if all votes were cast

M.4.2. Review and approval of agenda for the meeting

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

M.4.3 Approval of the minutes of last meeting

The minutes from Meeting No. 3 held on August 13-14, 2014 at Jaros Baum and Bolles, New York City were discussed. Judy MacDonald noted two editorial errors. Duncan Ellison moved

to adopt the minutes of Meeting No. 3 with the corrections noted by Ms. MacDonald; Judy MacDonald seconded the motion and it was carried unanimously.

M.4.4 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) Troy Vassos

M.4.4.1 Membership changes since the last meeting

Mr. Martin announced the appointment of Dr. Troy Vassos, representing Golder Associates Ltd located in Burnaby, BC, to the JTC as a voting member in the User Interest category. Mr. Gulletson announced the appointment of Dr. Nick Ashbolt, representing the University of Calgary, as an associate member.

M.4.5 Report on outstanding action items

Outstanding Action Items		
No.	**Action, Person Responsible, Report**	**Status, Due Date**
AI.1.6	Fill vacant User Category committee seat. (Shawn Martin, Paul Gulletson) **Report:** Shawn Martin and Paul Gulletson are working within the ICC and CSA processes to fill the remaining seat. Input sought from the committee on candidates.	Complete.

	Report: ICC and CSA are still going through the process to approve a new member. There are a few candidates under consideration. The action is ongoing. **Report Nov '14:** Troy Vassos was added to the committee as a voting member in the User Interest Category.	
AI.1.7	Seek participants for task forces from stormwater industry, experts (Justin DeWitt – MWRD, Shawn Martin – NOWRA, EPA) **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. **Report:** No responses from these individuals. Ongoing. **Report Nov '14:** Open	Ongoing, ASAP
AI.2.1	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. **Report Nov '14:** Shawn obtained hardcopies of the following standards for committee look up purposes: NFPA 13, NFPA 14, NFPA 1142, NFPA 20, NFPA 13-D. NFPA also gives free view access to all their standards on the internet.	Complete.
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) **Report Nov '14:** Shawn completed the restructuring.	Complete
AI.3.2	Obtain paper from Dennis Lye entitled "Water Quality in Cisterns". (Shawn Martin) **Report Nov '14:** Shawn provided the document to the Task Force and posted on the CSA COA.	Complete
AI.3.3	Determine whether it is possible to upload a document to the COA by means of e-mail. (Paul Gulletson) **Report Nov '14:** Paul is still looking into this. Open	Ongoing

A1.3.6	Research costs, availability and meeting locations for Meeting #4 to be held in Victoria, BC in October, 2014. **Report Nov '14:** Due to timing conflicts and budget constraints it was decided to hold meeting 4 by teleconference with the intent of meeting in person (perhaps in Victoria) in the new year. The committee Executive will reassess following meeting 4.	Complete

M.4.6 Code Correlation Discussion

Mr. Martin provided an update on the 2018 ICC Code Development Process and schedule. He noted that the likely location of any reference to a rainwater harvesting standard would be in the International Plumbing Code (IPC), International Residential Code (IRC), and International Green Construction Code (IgCC) since each contain provisions relating to rainwater harvesting. He indicated that both the IPC and IRC-Plumbing Provisions would be updated for the 2018 versions during the calendar year 2015, making code change proposals due on January 12, 2015. Given the present status of the draft standard, it was clear that it would not be completed for the purposes of the code (meaning published and publicly available) by the date of the first hearing in April, 2015. As a result, chairman Alf Durnie suggested that the individual members of the committee examine the language in the 2015 IPC and IRC relating to rainwater to determine whether changes should be proposed to make the codes more consistent with the Joint Rainwater Harvesting Standard when completed in the future.

Diane Green provided an update on the National Plumbing Code of Canada (NPC). She indicated that there were plans to develop a section on rainwater harvesting in the 2020 NPC. Given that date, all development would need to be completed by 2018. A task group under the Standing Committee on HVAC and Plumbing would be developing the material and would review the ICC/CSA standard when completed.

The group expressed interest in submitting changes to the 2018 IPC and IRC as a group. Shawn Martin was tasked with determining whether submission of code changes by an ICC committee to an ICC code is permissible. Chairman Alf Durnie suggested that the Task Forces review the material in the 2015 IPC and consider changes to be submitted for the 2018 version. See action item AI.4.5.

M.4.7 Task Force Report, Discussion, and Committee Feedback

The committee chairs requested brief updates on the status of the Task Forces.

M.4.7.1 Controls Task Force

Chair Doug Pushard provided an update on the activities of the Controls Task Force. He initiated a discussion on the question of whether different categories of controls were needed for commercial versus residential systems. Various perspectives were offered but no conclusions were reached. Mr. Pushard indicated that next steps for the group were to draft language regarding controls for possible inclusion in Clause 10 of the draft document.

M.4.7.2 Water Quality Task Force

Chair Russ Jackson provided an update on the Water Quality Task Force. He indicated that while there had not been significant progress since the last meeting, the group was working to review the draft tiers of usage with water quality experts and would continue to do so at the upcoming ARCSA Conference.

M.4.7.3 System Components Design and Materials

Chair David Cantrell indicated that the System Components Task Force, had worked to create several sub-groups to tackle specific issues – most notably tanks and first-flush diverters (roof washers).

For tanks, their review of the CSA B126 standard showed that it met some of the needs, but not all. Mr. Martin and Mr. Gulletson shared the origin of the B126 document, which was intended to meet the needs of isolated communities with limited resources to store water simply and safely. Since that document is needed in its present form, it was agreed that the best path for this committee was to extract those provisions of B126 that are useful and revise and append them as necessary. Mr. Cantrell requested the assistance of Dana Schmidt of the Steel Tank Institute to lead a sub-group to take on this task. Ms. Schmidt was in the process of assembling a group representing various types of tank manufacturers to develop the required text.

Mr. Cantrell also indicated that he had reached out to code official, Shawn Strausbaugh of Arlington, VA for assistance in reviewing roof washer provisions. Mr. Strausbaugh chaired the PMG Code Action Committee that developed the rainwater harvesting provisions that were added to the 2015 IPC.

M.4.8 Detailed Review of Working Document

The committee, led by the chairs, then continued the process of reviewing the working draft sequentially begun during Meeting #3, beginning with Section 9, Storage. 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.

- Storage. Chris Despins and Alf Durnie noted provisions from B66 that address the ability of buried storage tanks to withstand outside loads, and issues relating to partial burial. The group also discussed the issue of tank freezing and whether insulation was required where part or all of the tank is located above the frost line.
- Makeup Water. Judy MacDonald noted the issue of makeup water quality where systems are used for potable purposes. The group discussed whether makeup water must be potable for potable systems, or if a disinfection/treatment system can be used to raise both rainwater and any non-potable makeup water introduced to potable water standards.
- Overflows. Overflow sizing was discussed, especially as it relates to multi-tank installations. Chris Despins questioned whether pumped overflows should be permitted. Mike Warren stressed the importance of backwater valves on overflows.
- Outlets/Inlets to Tanks. The group discussed the need for/importance of quiescent inlets to ensure that the water introduced to the tank does not disturb any stratification. Locations of outlets from the tank were also discussed, both from the bottom and the

surface of the tank. Mike Warren raised the issue of vortexing if outlets are situated too close to the water surface. Floating inlets were also discussed, and the consensus appeared to be to implement specific provisions for floating inlets, but not to require their use.

Discussion and review of the draft ended prior to Section 9.7, Access.

M.4.9 Review of Schedule

The co-chairs then lead a discussion of the overall project schedule and next meetings. It was agreed that additional time and discussion would be required before the document was suitable for public comment. After some discussion the following rough, revised schedule was agreed upon.

- Dec 2014: **Meeting #5**
- Feb 2015: **Meeting #6 (face-to-face)** to develop draft and finalize for Public Review
- Mar 2015: Release draft for Public Review and Comment – round 1 (60 days)
- May 2015: **Meeting #7** to review and resolve PC 1 comments
- June 2015: Release draft for Public Review and Comment – round 2* (45 days)
- Aug 2015: **Meeting #8** to review and resolve PC 2 comments
- Sept 2015: Comprehensive edit formatting of the draft by CSA Editorial Services
- Nov 2015: 30-day ballot to approve the standard
- Dec 2015: Draft submitted to CSA Editorial Services for final production
- Jan 2016: 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.4.10 Date and Location of Next Meeting

A poll will be issued to members to establish the date and location of the next meeting (February 2015 timeframe in Victoria or Vancouver).

M.4.11 Adjourn

Upon completion of scheduling, the chairs invited a motion to adjourn. The meeting adjourned at 3:10 pm EST.

Appendix A

Task Force Open Projects

CSA/ICC B805 Joint Technical Committee on Rainwater Collection System Design and Installation (IS-RCSDI)
Minutes of Meeting No. 4; held on November 5, 2014
Issued: November 26, 2014
CSA File: B227-23
ICC File:

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) Nancy Springer Joe Rogers Penh Tov Russ Jackson Jeff Hugo Justin Dewitt Doug Pushard	• **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. • **Nov 2014:** No update.
RWH-14-02 **Water quality (source and output)**	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	• **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.
RWH-14-04	Doug Pushard (Chair) Mike Warren	• **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 Chris Despins Rob O'Donnell	• **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.
RWH-14-06 **System components design and materials**	Dave Cantrell Alf Durnie Judy McDonald Phil Parisi Joe Rogers	• **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. • **Nov 2014:** Action items: Continue to review, revise and draft language. Initiate work of new sub-groups.

Appendix B

Committee Member Coordinates

Appendix C

Agenda for the Meeting

Appendix D

Instant Messaging Notes

Date for Next Meeting

Troy Vassos:Feb sounds reasonable
Mike Warren:I would agree, definetly need to a face to face before public comment release
Troy Vassos:yup
robert odonnell:I'm at ASHRAE in Chicago last week of Jan
rubin:doodle pool???
robert odonnell:Jan 27-30

Resources

Nick Ashbolt:shawn I did not received it yesterday, please send PDF of all
PMG1 GROUP:Will do NIck
judy macdonald:yes ASHRAAE 188 can still be commented on.
judy macdonald:do we need to link to the greencode?
rubin:how much from igcc is incorporated into plumbing code???
PMG1 GROUP:Most of the rainwater section (except potable rainwater provisions).
PMG1 GROUP: 2015 IgCC is about to be released. Do you need the plumbing code provisions in Chapter 13 of the IPC?

Controls Task Force Update

rubin:if the potable water system supplies more than 15 people for a specified number of days, then the community water supply rules apply... that requires some monitoring...
judy macdonald:for potable that requires disinfection should be continuously monitored for disinfection.
Troy Vassos:commercial should be more stringent for potable given a larger population exposure
Mike Warren:to simplify a residential system would be more manual than a commercial system
Troy Vassos:yes ..
Nick Ashbolt:performance will differ by different pH and other factors (say chlorine demand) for different disinfectants
Russ Jackson:I dont think a residential potable system should require continuous monitoring
justin:Do we think that Joe Homeowner will handle "manual" operation of his system better than a building engineer in a commercial situation? Doubt it...There are relatively cheap controls available for the smallest sytems.
Troy Vassos:bacteria are not necessary good indicators for potable water treatment - using ultrafiltration membranes (for example) filter out the indicators - but not viruses

Russ Jackson:I am a well owner. I manually control my system all of the time.
Troy Vassos:residential should focus on system redundancy - like UV and chlorine combined - for potable (as an example)
rubin:i urge us to consider the public supply criteria imposed by usepa... 25 people or 15 connections and 60 days is considered a public supply and states have differing requirements for these than for single family systems
judy macdonald:"public" potable has different requirements and performance varies based on water quality such as pH and turbidity.
Troy Vassos:good idea Bob
judy macdonald:and performance varies accordingly to the treatment process selected as Doug is indicating
Troy Vassos:our cutoff?
Troy Vassos:not BC .. small systems versus large systems - versus single family
Troy Vassos:small systems serve up to 500
Troy Vassos:in Canada and the US (I understand) it is provincial/state defined - not federal
rubin:public water supply is defined by usepa under sdwa
Troy Vassos:NSF ANSI Standard 55 Class A for potable water in BC
Troy Vassos:any raw water source
rubin:yes if ovver 15 or 25 and 60 days service.
Troy Vassos:Isn't water quality a given .. we are talking about levels of assurance due to monitoring/controls or system redundancy (like dual disinfection)
rubin:hope so...

Water Quality Task Force Update

rubin:epa guidelines are for reuse... harvested rainwater is the first part of that cycle in the terestrial environment... do reuse parameters really apply...???
rubin:dr ashbolt is a very reputable expert too...
Troy Vassos:rainwater harvesting or reuse?
Troy Vassos:rainwater isn't a resue category
Mike Warren:how you monitor can vary....manual or with a sensor.
Mike Warren:I would say either way is monitoring, its just varying how you get the results of what you monitored.
Troy Vassos:generally rainwater harvesting is small scale .. so sampling and monitoring generally isn't practical
rubin:coliform monitoring daily gets expensive... is coliform a good bact indicator for rainwater ??? i agree, it is the standard for dw...
Troy Vassos:system redundancy .. secondary indicators .. these are more appropriate
Mike Warren:the control would be an action taken from a monitored value beeing out of range?
Troy Vassos:rainwater and non-human contact do not go together
Troy Vassos:the standards developed for water reuse do nto apply to rainwater harvesting
judy macdonald:water quality monitoring is a "confirmation" that barriers are working. The "controls" monitoring is what tells you the barriers are working.

rubin:agree... but we have the dw folks we must satisfy IF the water is used for potable purposes... we have MANY state agencies imposing different standards for reuse... that is the problem.!
Troy Vassos:readout of what?
justin:monitoring should be addressed in both commissioning and ongoing operations. How much and what may depend on risk.
Troy Vassos:instrumentation is expensive and requires a large amount of maintenance
judy macdonald:hence why we recommend NSF 55 Class A since the monitoring is included in the unit
rubin:dr a is absolutely right...!!!
judy macdonald:acknowledge that but there are pathogens found in rainwater and outbreaks documented. Most papers recommend treatment if to be used for potable.
rubin:agree...
Mike Warren:good point Rubin
Troy Vassos:sorry .. I lost power (hotel housekeeping litterally pulled my room card from the electrical block) - then I couldn't log back in
Troy Vassos:When you say monitoring I still don't understand what monitoring you are proposing
rubin:an item we forget is that the system may transfer to to the next user... some provision seems necessary to assure sustainability of these systems...
Troy Vassos:Yes ..
Troy Vassos:automatic shut off .. that's what is done
Troy Vassos:alarm condition in a commercial building has a fail safe shutoff
Troy Vassos:but that is for a commercial or institutional building
Troy Vassos:not residential
Bert van Duin:Even though the code may not be able to provide info re what needs to be done after the system has been commissioned, any guidance would be most appreciated by the jurisdictions (municipalities) that are expected to oversee these systems. (by Bert van Duin - City of Calgary).
robert odonnell:Frequency anf type of monitoring will aid in developing what type of monitoring is practical. M&V can even be done remotely while maintenance procedures are done on site.
Troy Vassos:Has the point been addressed that we shouldn't be attempting to use a water reuse standard for rainwater harvesting?
Troy Vassos:NSW BASIX website
Troy Vassos:Texas is also a very good source
Russ Jackson:stepping away for 5 min
robert odonnell:The ASHRAE 188 gives an idea of water mgmt plan, originally it looked more like a HACCP plan like seen in healthcare
rubin:shawn - i am going to have to get to an appointment... i will be leaving the call at 130... thanks for the opportunity to participate,
judy macdonald:yes, HACCP and water safety plan are similar
PMG1 GROUP:Thrilled to have you Bob. Sorry for the technical issues.
Troy Vassos:http://www.ces.ncsu.edu/depts/agecon/WECO/documents/WaterHarvestHome2008.pdf
Troy Vassos:more to it than an equation .. that link is just an example of a lay guideline
Troy Vassos:why is the standards looking at tank sizing?

Troy Vassos:Size is personal preference .. with some guidance to get an idea of what can be collected

PMG1 GROUP:We're seeking to address the sizing implications of a fire-fighting reserve and/or usage of the rainwater harvesting system to detain and control stormwater in particular

Nick Ashbolt:Good starting point for water safety plan (HACCP) approach is from the Australian EnHealth Council, see: http://www.health.gov.au/internet/main/publishing.nsf/Content/0D71DB86E9DA7CF1CA257BF0001CBF2F/$File/enhealth-raintank.pdf

Troy Vassos:it's a function of water use (demand), climatic conditions (rain, snow, etc.) and roof area for supply ..

Troy Vassos:I can see size if it is the only source of water and there is a building permit issue

Troy Vassos:but that is a rural single family residence issue

Troy Vassos:aeartion

Troy Vassos:aeration to keep it sweet

Bert van Duin:You may have to limit yourself as to how far you want to take the sizing discussion. When being done from a stormwater perspective, rainwater harvesting is only one part of a much larger exercise. There are local targets that can be very different - sounds like a dog's breakfast to me.

Nick Ashbolt:Agree with Bert, what the concern on sizing, as it is so locally defined and for use

Nick Ashbolt:More important is maintenance, e.g. clean out of rainwater tank sediments, fixtures, air gaps etc.

Bert van Duin:With sizing methods and sizing tables you might actually create confusion. You need to be careful in explaining how the method or table can be used. For instance, the tables being used in Ontario and Alberta have very limited value when rainwater harvested for purposes other than supply. In fact, they may do more harm ...

Nick Ashbolt:Also missing is the use need for leaf diverters and first flush devices

Troy Vassos:Got to run Shawn .. sorry .. can we chat sometime next week?

PMG1 GROUP:of course, troy - when do you get back

Troy Vassos:I am back this Sunday .. so any time Monday onward would be OK ..

Mihailo Mihailovic:Need to go to another call now. Thank you and I look forward to following this progress more.

PMG1 GROUP:Thank you for attending!

Ken Nentwig:recycled, reused, stormwater, or other lesser-than-desired quality water should not be used for make-up water

Ken Nentwig:refill of the tank = make-up system; using other in place of rainwater = bypass system

Mike Warren:same quality or better....this little section could live in the water quality section. Obviously we can not put non-potable water into a tank or ssystem that is used for potable water.

Ken Nentwig:yes, better said

Mike Warren:right Phil

Ken Nentwig:the document reference stormwater from the beginning, leaves it out in this section, thus my comments

PMG1 GROUP:Yes, we need to be consistent

Mike Warren:backwater valve is a must, especially in systems with old combined storm/santary systems

Bert van Duin:Be careful that you make the overflow pipe large enough. There is a certain head necessary to force the water into the (gravity) overflow pipe. Make sure that the tank is high enough to account for this.

Mike Warren:side note on the valve on inlet of tank, just make sure valve fails closed upon power failure

Mike Warren:since we are writing a "standard" the we should write the standard design to be a gravity overflow rather than outline how to do all overflow types that exist. ?

Bert van Duin:How do you prevent cold air possibly entering through the overflow escape system impacting on the tank itself?

Doug Pushard:Typically does not impact as overflow is at the bottom of the tank.

Bert van Duin:Even if the overflow is not at the top of the tank, there will still be standing water somewhere that can be exposed to the atmosphere if you want a gravity overflow. How do you prevent this overflow from freezing?

Bert van Duin:Section 9.6.1: what is "minimum" in minimum turbulence? How is this defined? Who determines whether it is adequate or not? The current verbiage doesn't provide that kind of guidance.

Bert van Duin:How do the Germans deal with first flush?

Ken Nentwig:I have seen vortex filters with fine screens used in place

Ken Nentwig:does a prescribed quantity of first flush actually work all th time? in heavy rainfall it doesn't matter so much, in low volume or low intensity rainfall it could be everything

Joe Rogers:Ken, you are correct, in some areas that would be the whole rainfall that's why Doug wants it optional.

Bert van Duin:Can one monitor the thickness of the sediment layer at the bottom???

Alf Durnie:When requiring or not requiring a first flush device the surronding environment needs ot be considered. like is there likely a lot of organic load on the roof or residual from vehicles and air born pollutants which also needs to consider the interval between rainfall events and so how much might collect on the roof surface.

Alf Durnie:If no diverter can it be made up by the treatment capacity of the treatment unit as opposed to requiring first flush device.

Joe Rogers:Doug seemed to indicate that is what he does Alf.

Diane Green:I will be leaving the tele in about 10 minutes; thank you for allowing me to participate.

PMG1 GROUP:Pleasure to have you join us, Diane. Please feel free to attend anytime. Do we have you listed as an associate member?

Diane Green:I do not believe so; maybe we should chat later to open the lines of communications.

Bert van Duin:Thanks, Shawn, for allowing me to listen in as a guest. Looking forward to seeing the first draft next year. In the meantime, if anyone has any questions re my comments, you as well as Chris and Troy have my contact information.

PMG1 GROUP:Very kind of you Bert, we're pleased to have you.

PMG1 GROUP:I believe that you already listed as an associate member?

Bert van Duin:No, I don't think so. We can talk about this separately. Got to run now ...
Mike Warren:There are hydraulic standards for flows and velocities for the intake pipe sizing on pumps
Mike Warren:see: Cameron Hydraulic Book
Mike Warren:suction line velocity on pump intake not to exceed 5 or 7fps....will need to check
Mike Warren:I need to jump off at 3
Mike Warren:4th is good
Mike Warren:1st is good
Ken Nentwig:first week of Dec OK for me
Mike Warren:I have to run, will look for meeting invite.
Ken Nentwig:I am online listening, will sign off and catch up with incoming emails - no worry about VOIP for me if it fails
Ken Nentwig:no sound, I'm gone
Russ Jackson:I have another meeting coming up. I will look for an invite