



CEN/TC312's Liaison to CEN/TC164

Short Update

as of October 8th, 2018

Dr. Jean-Marc Suter

physicist SIA, Suter Consulting, Berne

suter@suterconsulting.com

Content

- General information about CEN/TC164 activities (as requested by the SCF Steering Committee)
- Status of the revision of EN 806
- Facts and figures on drinking water hygiene in buildings

General about CEN/TC164

- CEN/TC164 “*Water supply*” (cold and hot water systems in buildings, from the entry into the premises)
- CEN/TC164/WG2 “*Internal systems and components*”
Latest meeting: September 27th, 2017 in Cologne
Next meeting: October 31st, 2018 in Jona, Switzerland
- CEN/TC164/WG2/AHG “*Ad-Hoc-Group*”
The steering group of WG2
Most recent meetings: February 15-16th, 2018 in Cologne and July 17-18th, 2018 in Vienna
Next meeting: October 30th, 2018 in Jona, Switzerland
I am a full member of AHG.

General about CEN/TC164

ACTIVE WORKING GROUPS

Working group	Title	Convenor	
CEN/TC 164/WG 1	External systems and components	Nick Preston (UK)	
CEN/TC 164/WG 2	Internal systems and components	Volker Meyer (GE)	← relevant for solar thermal
CEN/TC 164/WG 3	Effects of materials in contact with drinking water	Hilde Prummel (NL)	
CEN/TC 164/WG 5	Concrete pipes	François Leblanc (FR)	
CEN/TC 164/WG 8	Sanitary tapware	Werner Heinzelmann (GE)	
CEN/TC 164/WG 9	Drinking water treatment	Bernard Leroy (FR)	relevant for solar thermal, but co-operation denied by convenor
CEN/TC 164/WG 10	Hot water and cold water storage within dwellings	Martyn Griffiths (UK)	←
CEN/TC 164/WG 12	Flexible hoses assemblies	Jörg Rudolph (GE)	
CEN/TC 164/WG 13	Water conditioning equipment inside buildings	Joseph Klinger (GE)	
CEN/TC 164/WG 14	Valves and fitting for buildings and devices to prevent pollution by backflow	Tino Reinhard (GE)	
CEN/TC 164/WG 15	Security of drinking water supply	Thomas Zenz (GE)	

General about CEN/TC164

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CEN/TC 164/WG 14	Valves and fitting for buildings and devices to prevent pollution by backflow
CEN/TC 164/WG 15	Security of drinking water supply

active WI	PWI	syst. review	publ. 2016/17
	1	1	
	5		
1	1	9	
6	1		3
1	7	7	4
	6	1	1

General about CEN/TC164

LIAISONS

- **Liaison and partners organizations: AQUA Europa, AQUA, ECOS, EHI, ESA, EuSalt, EWTA, EuLA, MASM, CEIR (taps and valves), TEPPFA**

- **Committees in liaison with CEN /TC 164:**
 - **Official**
 - CEN/TC 57 "Central heating boilers"
 - CEN/TC 69 "Industrial valves"
 - CEN/TC 133 "Copper and copper alloys"
 - CEN/TC 197 "Pumps"

 - **Non-registered in Projex**
 - CEN/TC 155 "Plastics piping systems and ducting systems"
 - CEN/TC 165 "Waste water engineering"
 - CEN/TC 203 "Cast iron pipes, fittings and their joints"
 - CEN/TC 402 "Domestic Pools and Spas"
 - CEN/TC 426 "Project Committee - Domestic appliances used for water treatment not connected to water supply"
 - CEN/TC 312 "Thermal solar systems and components"
 - ISO/TC 224 "Water services"

Revision of EN 806 “Technical Rules Drinking Water Installations”

- First standard considered for revision: EN 806-2 -- Design of drinking water installations in buildings
- Status:
 - Feb. 2018: New table of content updated at AHG meeting
 - Feb. 2018: Austrian and Swiss inputs for EN 806-2 entered into master document at AHG meeting
 - March-June 2018: German inputs for EN 806-2 prepared by the DIN mirror committee under consideration of Austrian and Swiss inputs; update of master document by Germany
 - July 2018: 33% of master document discussed at AHG meeting
- Content:
 - Hygiene, energy, pipework, acoustics, materials, valves, pressure, pumps...
 - Emphasis put on the drinking water distribution system (cold and hot)
 - So far, no solar thermal specific feature included

Facts and figures on drinking water hygiene in buildings

- Much more legionellosis cases in the summer months than in the winter time
- Much more contaminations by humid cooling towers than by drinking water systems
- Several measuring campaigns on drinking water installations performed in multi-family houses, in particular in Germany
- Literature study performed by Dr. Mchel Haller, SPF Research, Rapperswil, about such measuring campaigns
- Main conclusion: the drinking water distribution network (cold and hot water) is the main source of contamination by Legionella, not the store!

Facts and figures on drinking water hygiene in buildings

- Prof. Th. Kistemann, Universitätsklinikum Bonn
 - about 25% of 73 multi-family buildings have a (very light to severe) contamination
 - Large installations more frequently contaminated than small ones
 - Circulation line installed → higher risk of contamination
 - Distribution lines more frequently contaminated than stores; probably: contamination of stores by return flow of circulation lines
 - Cold water temperature measured at taps: 16 °C to 58 °C (!!)
 - Hot water temperature measured at taps: 19 °C (!!)
 - Maintenance is a very important parameter; documentation must be very clear; operators of the installations must be well instructed
 - Temperature at store outlet is only one important factor for the contamination risk by Legionella; no absolute threshold value valid for all installations, that would separate low risk/high risk of contamination; higher risk under 50 °C; lower risk above 60 °C

Facts and figures on drinking water hygiene in buildings

Hygiene rules that are already clear:

- No unused drinking water distribution line nor tap (no stagnation of cold and hot water in the whole system)
- Drinking water distribution lines have to be distributed into three categories at design time:
 - Cold water lines (temperature < 25 °C)
 - (Insulated) lines maintained at a high temperature (Switzerland: >52 °C)
 - (Uninsulated) hot water draw-off lines that cool down at room temperature after draw-offs
- Heat traps to separate draw-off lines from the store or, if relevant, from the lines maintained at a high temperature
- Cold water lines not to be installed parallel to hot water lines or space heating distribution lines
- Design rule (Switzerland): hot water has to be able to reach at least 50 °C at each tap after a certain delay (CEN/TR 16355: 60 °C after 30 s)
- Circulation lines (Switzerland): at least 52 °C in all branches (CEN/TR 16355: 55 °C); hydraulic equilibrium needed to be certain that temperature > 52 °C everywhere

My personal conclusions (1)

- Requirements on preheated drinking water in stores (solar thermal and heat recovery systems) are not yet clear.
- If solar collector area is large enough to heat up hot water to at least 55 °C from February to October, there is only a small contamination risk of the solar heated store, provided there is no circulation line installed (i.e. no store contamination by the drinking water distribution system).
- Designers of heat pump systems may have more problems with Legionella proliferation, although they are not participating to the revision of EN 806 (CEN/TC164 rejected my request to appeal other TC to participate to this revision).

My personal conclusions (2)

- Final requirements for solar heated stores may possibly be less severe than suggested in the ESTIF study and Code of practice of 2013.
- I postponed the discussions in the Strategic Working Group of CEN/TC312 until the position of Switzerland is clear (current revision of SIA 385/1 needs more time, in order to get agreement with Swiss industry of solar thermal systems and heat pumps).
- So far, only Costas Travasaros announced his participation to the Strategic Working Group. Other experts are very welcome! Please contact me!

Thank you for your attention!