International Code Council

Solar Rating & Certification Corporation

COMMITTEE MEETING MINUTES

SOLAR THERMAL STANDARD CONSENSUS COMMITTEE (IS-STSC)

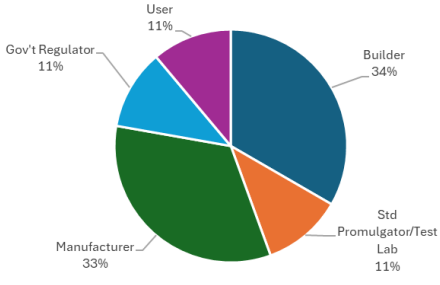
A meeting of the ICC Solar Thermal Standard Consensus Committee (IS-STSC) was convened on April 17, 2024 to start work on revisions to standard *ICC900/SRCC 300 Solar Thermal System Standard.* The meeting and project was conducted in accordance with ICC's ANSI-approved standard development procedures.

1. Meeting Opening

   a) Welcome & Roll Call

   Staff secretariat, Shawn Martin, welcomed the attendees and convened the meeting at 4:02 PM EDT.

   b) Quorum and Membership Review



Martin called the roll of IS-STSC members with attendance recorded below. Martin invited all new attendees to introduce themselves.

Martin indicated that two of the committee members named to develop the ICC 903/SRCC 500 standard had elected not to continue serving for the next round of standard development for the ICC 900/SRCC 300 standard. He thanked them for their service and reported that the IS-STSC now stood at 9 members, with the interest categories as shown. Since none of the categories exceeds 30%, the committee is still considered balanced, per the ICC Standard Development procedures. He noted that if any other committee members withdraw, it would likely be necessary to solicit applications for additional members to maintain appropriate balance and size.

Martin indicated that with 6/9 committee members present, the threshold of 5 for quorum had been met. He reported that presently the committee was balanced, per ICC's standard development procedures. All attendees are listed below.

NAME	#1 4/17	#2	#3	#4	#5	# 6	#7	#8	#9	#10
Adam Chrisman [B]	x									
Robert Grady [C]	x									
Jason Hall [A]										
Kevin Kalakay [H]	x									
Mitchell Ramseur [D]	x									
Al Rich [B]										
Richard Horton [A]										
Henry Vandermark [B]	x									
Austin Zeller [A]	x									
TOTAL	6									
QUORUM										

INTERESTED PARTIES PRESENT: *Steve Harrison (QSBRI/CSA TC420), Jeff Kleiss (Lochinvar/AO Smith), James Richards (SunBank), Joe Cain (SEIA), Alex Ward (FAFCO), Larry Kidd (Rheem), Chris Mobley (UL Solutions)*

ICC STAFF MEMBERS PRESENT: *Shawn Martin, Isai Ayala*

c) IS-STSC Leadership Review

Martin indicated that with the start of work on the next standard, new elections would take place for committee leadership. He called for nominations from the IS-STSC. Adam Chrisman expressed a willingness to serve as Chair and Robert Grady expressed willingness to serve as Vice Chair. No other nominations were received. Henry Vandermark made a motion to approve Chrisman as Chair and Grady as Vice Chair. Kevin Kalakay seconded the motion. There was no discussion and the motion was approved unanimously. Martin expressed thanks to the outgoing leaders and welcomed the new leaders.

d) Agenda Review and Approval

Martin called attention to the draft agenda asked for comments or additions. No comments provided. Chrisman made a motion to approve the draft agenda and Zeller seconded. It was approved unanimously.

2. Introduction to Staff Working Draft of ICC 900/SRCC 300

Chrisman asked Martin to proceed with an introduction to the revision process for the standard and the working draft provided in advance of the meeting.

Martin noted that with the completion of the ICC 903/SRCC 500 standard for solar tanks, the ICC 900/SRCC 300 Solar Thermal System standard would be revised next. He noted that ICC's ANSI-approved standard development procedures require that standards be revised or reaffirmed at least once every five years. Since this standard was last updated in 2020, and since the provisions for tanks in 900 standard now need to be aligned with 903, it was selected for update. The other 2020 solar thermal standards, ICC 901/SRCC 100 and ICC 902/SRCC 400 will be updated in 2025.

Martin indicated that the ICC 900/SRCC 300 standard was opened for revision in 2023 when it was announced in the ANSI Standards Action. At that time proposals for changes to any portion of the document were requested. None were received. Therefore there are no proposals for the committee to adjudicate and it is free to begin the revision process.

Martin then produced a staff draft to reflect a number of the changes discussed during the development process of the ICC 903/SRCC 500 standard and to address feedback received informally since the 2020 edition was published.

Martin noted that some changes may be advisable to allow for the use of the document in other countries. He invited Dr. Steve Harrison to brief the committee on efforts underway in the CSA TC 420 group to revise the CSA F379 standard to reference ICC 900/SRCC 300.

Dr. Harrison indicated that CSA had reopened the CSA F379 standard for solar thermal systems since it had not been updated since 2009. He noted that the CSA F378 standard for solar thermal collectors was withdrawn several years ago, but that F379 still references it. Another standard, CSA F383 addresses system installation. Both F379 and F383 are referenced in the Canadian Building Code. Harrison explained that the original F379 document was oriented around a testing-centric approach for systems, based on the capabilities of the National Solar Test Facility in Canada. However, that facility is no longer in operation as of 2024. And given the cost associated with system testing, the industry was seeking a more flexible and cost-effective certification and rating solution, such as that used in the U.S. There was also a desire to adopt an approach that used the updated collector test methods in the ISO 9806 standard used in the US and EU. As a result, he expressed an interest in updates to the ICC 900/SRCC 300 standard to facilitate its use in Canada as well.

Martin also indicated that a version of the standard is now being used in by CARICOM in the Caribbean region. But to do so, it was necessary for them to make a number of revisions to accommodate local regulations.

3. General Revision Discussion

Martin provided an overview of the key topic areas for revision in the ICC 900/SRCC 300 document that had been identified thus far. The topics were summarized in the PowerPoint presentation attached.

Installation Appendix

Martin described a potential revision to move all installation-related provisions to an optional appendix in the new edition of the standard. This approach would make it easier for international users to utilize the standard without going through and stripping out US-centric code citations (see CSA standard update summary above) . It also allows for easier use by jurisdictions who may have local amendments.

Solar Tank Standard References

Martin displayed a potential revision to the tank listing section of the 900 standard to allow for use of a list possible standards for tank listings consistent with the approach used in the 903 standard. Chrisman suggested a simplification to table of reference standards.

Martin also highlighted the need to handle tanks in ICS and inseparable thermosiphons differently since they are excluded from the scope of the 903 standard. He described a potential approach that was discussed in part during the development of 903 that involves two compliance tracks. The first would be component-based and require individual testing and listing of each component. A second would be system-based and would involve a full system test that includes all relevant tests for collectors and tanks together. He showed a flowchart to describe this approach and an example of the relevant tests for a certain type of thermosiphon system.

Other

Martin also briefly mentioned various questions that have arisen regarding electrical safety that result from the topics addressed above.

4. Other Business

None

5. Action Items & Adjournment

The action items from the meeting were summarized as follows:

Schedule next meeting – date and time TBD.	*Shawn Martin w./ Chair/Vice*

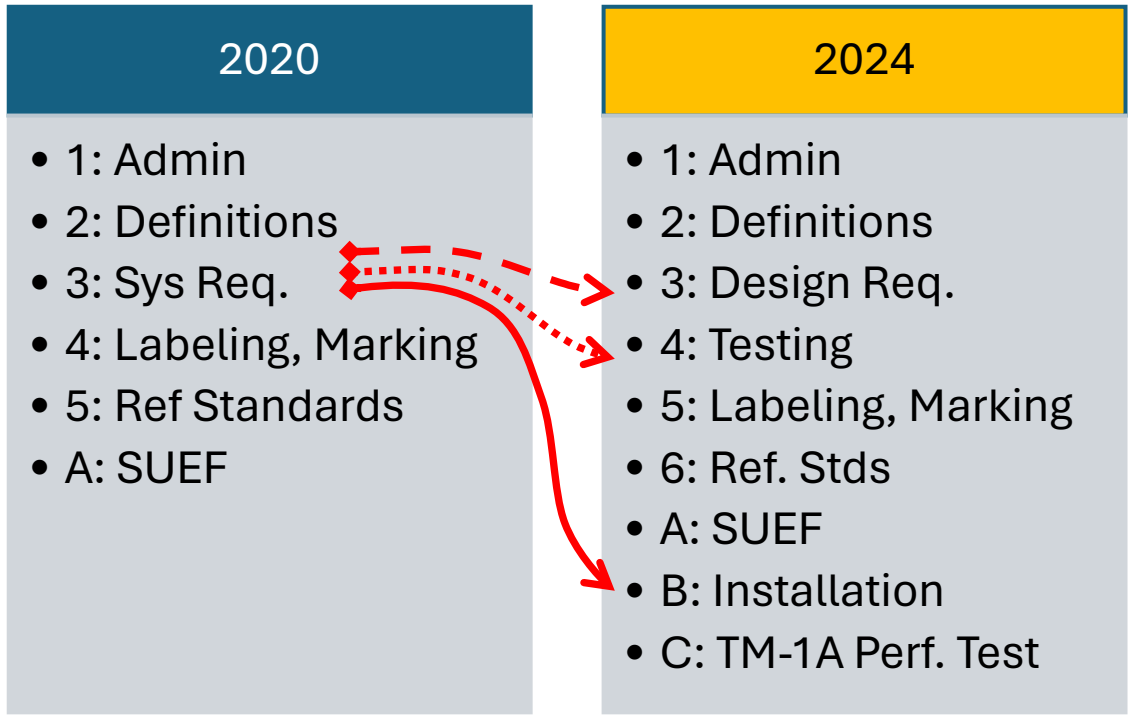
The meeting was adjourned at 5:00 PM EDT.

ICC 900/SRCC 300 -202X

Staff Working Draft Discussion

4/17/2024

Installation Information



Rationale:

- Installation details cannot be enforced by certification.
- Local installation requirements vary (esp. internationally)

Notes:

- Optional appendix approach allows for adoption where needed.
- CSA preparing to reference the standard for Canada and has F379 standard for installation.
- Standard used by CARICOM in Caribbean
- Alternative to address installation provisions in manual section.

Tank References

305.3.1 Tank listing. Tanks used as part of solar water heating systems to store heated liquids shall be listed and labeled to at least one of the standards in Table 305.3. Tanks installed in outdoor locations shall be specifically listed and labeled for outdoor use.
Exception: Solar tanks inseparable from solar thermal collectors (i.e. integrated collector storage (ICS) and inseparable thermosiphons) shall comply with ICC 901/SRCC 100 and ICC 903/SRCC 500, but shall not be required to be separately listed and labeled.

TABLE 305.3
SOLAR TANK STANDARDS

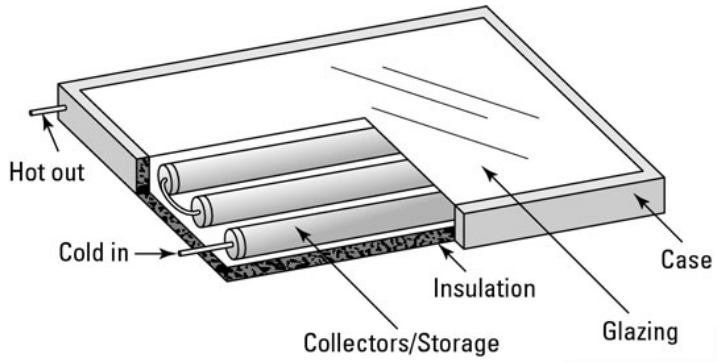
SOLAR TANK TYPE	STANDARD
Direct	UL 174; UL 1453; UL 732; ANSI Z21.10.1/CSA 4.1; Z21.10.3/CSA 4.3; ICC 903/SRCC 500
Indirect (with integral heat exchanger)	ICC 903/SRCC 500

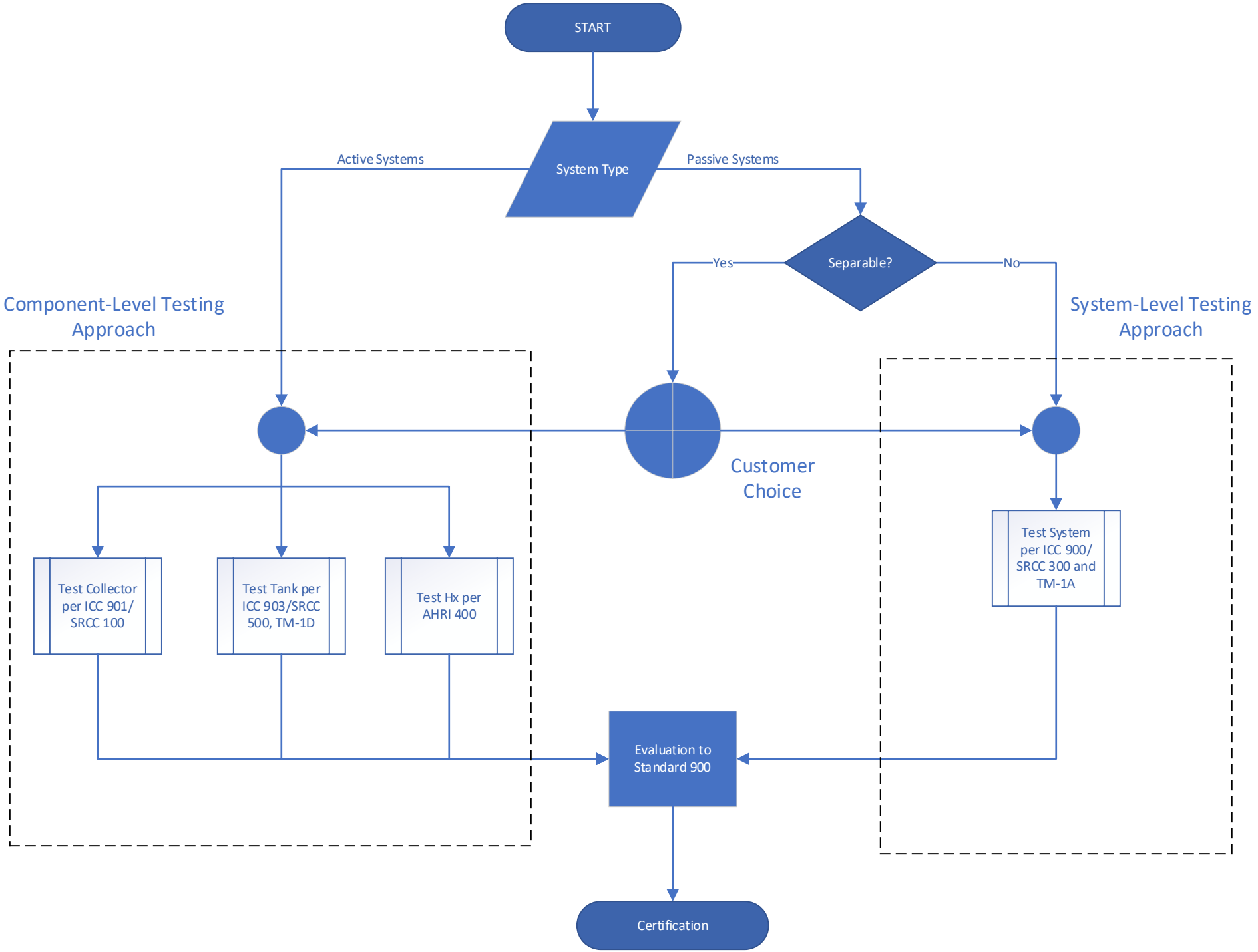
Rationale:
- Current standard requires tanks be listed – gives no guidance on criteria
- Process needed for inseparable tanks (ICS, thermosiphon)
- Currently no information on use of use of WH as solar tanks

Notes:
- References ICC 903/SRCC 500 as one option among several for most tanks.
- Provides compliance path for inseparable systems.

Questions for Inseparable Collectors/Storage

1. Do inseparable collectors need to be certified to ICC 901/SRCC 100?
2. Do inseparable tanks need to be certified?
3. If we require system testing instead of component testing for some systems, do we allow it as an option for all?
4. Do we require performance testing for inseparables (like we do for collectors)?




START
System Type
Active Systems
Passive Systems
Separable?
Yes
No
Component-Level Testing Approach
System-Level Testing Approach
Customer Choice
Test Collector per ICC 901/ SRCC 100
Test Tank per ICC 903/SRCC 500, TM-1D
Test Hx per AHRI 400
Test System per ICC 900/ SRCC 300 and TM-1A
Evaluation to Standard 900
Certification

Example: Inseparable System Tests

Item	Test	Type	Standard	Section	Notes
Collector	External Thermal Shock	Qualification	ICC 901/SRCC 100	402.4.4	
Collector	Internal Thermal Shock	Qualification	ICC 901/SRCC 100	402.4.5	
Collector	Mechanical Load	Qualification	ICC 901/SRCC 100	402.14	
Collector	Impact Resistance	Qualification	ICC 901/SRCC 100	402.15	
System	Exposure	Qualification	ICC 901/SRCC 100	402.3	
Tank	Outdoor Use Test	Qualification	ICC 903/SRCC 500	404.1	
System	Internal Pressure	Qualification	ICC 901/SRCC 100	402.5	Test both vessel and heat exchanger sections separately. Also see ICC 903/SRCC 500, Section 404.3 for pressure testing of the heat exchanger.
System	Heat Loss Test	Performance	TM-1A	5.3	Result is UA value per the test method.
System	Low-Temperature Clear Warm-Up	Performance	TM-1A	5.5.3	Provide raw measured data using attached spreadsheet.
System	High-Temperature Cloudy Warm-Up	Performance	TM-1A	5.5.4	Provide raw measured data using attached spreadsheet.