ICC 901/SRCC 100-2020 Checklists

2015 to 2020 Update for Existing OG-100 Certifications

The ICC 901/SRCC 100 standard forms the qualification basis of SRCC's OG-100 program, and compliance with the standard is required for certification to be granted. Most existing SRCC OG-100 certifications are based on the 2015 edition of the standard. With the completion and ANSI approval of the 2020 edition of the standard, ICC-SRCC will offer existing OG-100 clients the opportunity to update their certifications to the new edition. To do so, certification holders will be required to show compliance with all requirements in the 2020 edition. The 2020 edition may be viewed in its entirety on the SRCC website at https://solar-rating.org/resources/standards/

This checklist was created to assist manufacturers to identify new or revised requirements their specific collectors must meet to update their OG-100 certifications from the 2015 to the 2020 edition of the ICC 901/SRCC 100 standard. Certification holders can use the checklists to help with the decision whether to update their existing standards. Or they may also be used as a tool during the update process for a given collector.

The checklists assume that the collector was previously tested and certified to the 2015 edition of ICC 901/SRCC 100 and identifies only those provisions that were either changed or added in the 2020 edition. New OG-100 certification applications received after 7/1/2021 must include a test report conducted in accordance with ICC 901/SRCC 100-2020 and will be evaluated to that standard (therefore no update will be needed).

Two checklists are provided below to help manufacturers to identify the new requirements that apply to their specific collector type. The first checklist provides Prerequisite requirements that apply to all collectors. The second lists Collector-Specific requirements that apply in some cases. A questionnaire is also provided to help identify which collector-specific requirements apply in each case.

Each checklist lists the requirement, relevant section of the 2020 standard, and information that must be submitted to SRCC to demonstrate that the collector satisfies the requirement. Note that ICC-SRCC staff may request additional submittals as needed.

PREREQUISITE CHECKLIST

The items included in Section 1 apply for all OG-100 certifications to be converted from the 2015 to the 2020 standard, regardless of type.

SECTION 1: PREREQUISITES (APPLY TO ALL COLLECTORS)		
X	**1A: Collector Labeling (§502.2)**	Submittal: Image of updated OG-100 label.
Requirement: Collectors are required to be individually labeled with the following information: 1. Model name and/or number 2. Year of manufacture or serial number 3. Certification number and certifier 4. Maximum operating pressure (psi/kPa) 5. Dry weight (lbs./kg)		Description: This change was made by the standard committee to resolve differences between labeling requirements in various building codes and the standard. The SRCC certification label design has been updated to include the new information. Details regarding the use and format of the label can be

6. Fluid volume (gal./liters) 7. Compatible heat transfer fluids 8. Standard stagnation temperature (°F/°C)	found the latest version of the *ICC-SRCC Rules for Mark and Certificate Use*. Template images of the new labels in various graphic formats are available by contacting srcc@solar-rating.org. Values provided for the label must match those reported in the associated test report and must be provided in both the imperial and SI units shown. Labels may optionally include OG-100 performance rating information from rating table on the SRCC OG-100 certificate.
X **1B: Product Manual(s) (§503)**	Submittal: Updated manual for use with OG-100 certification.
Requirement: Collectors are required to be provided with a manual describing procedure for installation, operation, and maintenance.	Description: This change was made by the standard committee to provide key information regarding the use of the component that is needed by installers and owners. This is especially the case when the collector is provided as an off-the-shelf component for a system created by a designer, or in cases where replacement may be necessary. The manual may be provided in hard copy or digital form. Specific content required in the manual(s) is listed in Sections 503.1, 503.2, and 503.3. A single manual may address a family of collectors, so long as all required information is provided for all covered models.
X **1C: Efficiency Eqn (§402.10, 404)**	Submittal: None. Staff will utilize the existing test report.
Requirement: Collectors must undergo thermal performance testing in accordance with ISO 9806-2017. The thermal efficiency is to be calculated and reported in accordance with ISO 9806-2017, Appendix A.	Description: This change was made by the standard committee to reference the latest version of ISO 9806 testing methods and align with other international certification programs. Unlike the 2013 version of ISO 9806, the 2017 version provides a single, unified thermal efficiency equation. SRCC staff will convert existing efficiency equations from previous versions of ISO 9806 to the latest version as shown below. A linearized version with a simple slope and intercept will also be provided for use in legacy energy modeling software. $\dot{Q} = A_G\left(\eta_{0,b}K_b(\theta_L,\theta_T)G_b + \eta_{0,b}K_dG_d - a_1(\vartheta_m-\vartheta_a) - a_2(\vartheta_m-\vartheta_a)^2 - a_3u'(\vartheta_m-\vartheta_a)\right.$ $\left. + a_4\left(E_L-\sigma T_a^4\right) - a_5(d\vartheta_m/dt) - a_6u'G - a_7u'\left(E_L-\sigma T_a^4\right) - a_8(\vartheta_m-\vartheta_a)^4\right)$

COLLECTOR-SPECIFIC CHECKLIST

The requirements in Section 2 apply for certain collectors in certain cases. A questionnaire is provided following the checklist to assist manufacturers to determine when a given requirement applies. Note that in each case, additional criteria may apply, and the final determination of applicability will be made by ICC-SRCC staff.

SECTION 2: COLLECTOR-SPECIFIC (APPLY TO CERTAIN COLLECTORS)	
2A: Electrical Safety (§301.4)	Submittal: Electrical schematic and listings.
Requirement: Wiring that is not part of a listed electrical component, and electrical components themselves must comply with NFPA 70 or CSA C22.1.	Description: Electrical components and wiring that are integrated into the collector must comply with the electrical codes. Components like heaters, trackers, PV modules and pumps must be listed to standards within the electrical codes if over 24 V.
2B: Active Mechanisms (§401.3.1)	Submittal: None. Staff will utilize the existing test report.
Requirement: Active mechanisms must be operational during testing and evaluated during testing.	Description: Active mechanisms installed within or shipped with a collector and used for functions like high temperature control (defocusing) or high wind resistance (stowing) must be evaluated during testing to the standard. Staff will confirm that active mechanisms were evaluated and operational during testing.
2C: Pipe Insulation (§302.3)	Submittal: Integral pipe insulation specification sheets.
Requirement: Integral pipe insulation must comply with fire standards.	Description: Pipe insulation installed within or supplied with a collector must be tested to ASTM E84 and/or UL 723.
2D: Light Transmitting Plastics (§302.2.2)	Submittal: Plastic specification sheets and listings.
Requirement: Light transmitting plastics used on rooftop applications must comply with self-ignition, smoke development and smoke density requirements.	Description: Requirements for fire resistance for light-transmitting plastics have been in place in the IBC for many years. The standard committee added this requirement to the standard for consistency with the code.
2E: Plumbing Components (§303.2)	Submittal: Parts list and component listings.
Requirement: Plumbing components integrated into or supplied with the collector must meet requirements in ICC 900/SRCC 300.	Description: Applies to pressure-reducing, vacuum, pressure relief, check valves; backflow preventers, expansion tanks, storage tanks, piping or pipe fittings. Added by the standard committee to ensure consistency with Standard 300 and plumbing codes.
2F: Pressure Resistance (§301.2.6)	Submittal: None. Staff will utilize the existing test report.

Requirement: Collectors subject to mains water pressure must be able to withstand 100 psi without the use of a pressure reducing valve.	Description: Where a collector includes a pressure reducing valve, compliance will be checked.
2G: PVT Fire Testing (§402.17)	Submittal: Test report from accredited laboratory for fire testing of the PVT assembly per UL 1703 or 61730.
Requirement: PVT collector assemblies are required to undergo fire testing and classification per UL 1703 or UL 61730.	Description: This change was made by the standard committee to establish the fire classification of the PVT (PV + solar thermal) assembly. Fire flame spread and burning brand testing is prescribed in UL 1703, Section 31 and UL 61730, Section 10.17. Both reference fire testing methods in UL 790 with modifications. Testing must be completed on a complete assembly of the PV module and solar thermal layer.
2H: PVT Thermal Performance (§402.10.3)	Submittal: None. Staff will utilize the existing test report.
Requirement: Thermal performance testing of PVTs must be conducted with the PV module at MPP	Description: Staff will confirm that thermal performance testing was conducted with the PV module at the maximum power point (MPP). Since this has been SRCC policy for some time, this is not likely to be an issue for current certification holders.
2I: PVT Module Substitution (§303.4)	Submittal: None. Staff will utilize the existing test report.
Requirement: PV modules installed on PVT assemblies that differ from the specific model tested must meet one of two substitution criteria.	Description: The standard committee added language to clarify when different PV modules may be used with a single test report. Where the PV module associated with a PVT differs from the specific PV module used for testing per ICC 901/SRCC 100, the module must meet new substitution criteria. Language limiting substitution to these cases will also be added to the conditions of certification.
2J: Solar Air Heater Fire Resistant Materials (§302.4)	Submittal: Parts lists, material specification sheets and listings.
Requirement: Materials in SAH collectors exposed to airflow must have a flame spread index $\leq$ 25 and smoke developed index $\leq$ 50 per ASTM E84 or UL 723.	Description: The standard committee added fire resistance requirements for materials in SAH collectors to prevent them from contributing to or worsening a building fire.

Collector-Specific Checklist Questionnaire

The following questionnaire is intended to serve as a guide to identify the new or revised collector-specific requirements in the ICC 901/SRCC 100-2020 standard that apply to a given collector.

1. Does your collector incorporate any electrical components or wiring? *[If yes, 2A applies]*
2. Does your collector incorporate active mechanisms of any kind? *[See 2B]*
3. Does your collector incorporate pipe insulation that is installed at the factory or shipped with the product? *[If yes, 2C applies]*
4. Does your collector incorporate light-transmitting (transparent or opaque) plastics and if so, is it installed on rooftops? *[If yes to both, 2D applies.]*
5. Check all off-the-shelf plumbing components below that are incorporated into or shipped with your collector. *[If one or more are checked, 2E applies.]*
    - ☐ Pressure reducing valves *[If checked, 2F also applies]*
    - ☐ Pressure relief valves
    - ☐ Vacuum relief valves
    - ☐ Check valves
    - ☐ Backflow preventers
    - ☐ Expansion tanks
    - ☐ Storage tanks
    - ☐ Piping
    - ☐ Pipe fittings
6. Is your collector a PV-Thermal Hybrid (PVT) type? *[If yes, 2G, 2H and 2I apply]*
7. Is your collector used for solar air heating applications? *[If yes, 2J applies]*

For questions regarding ICC 901/SRCC 100-2020 or the process of updating an existing OG-100 certification Contact Us on the SRCC website or via e-mail at srcc@solar-rating.org.