



## Eligibility Checklist for Expedited Solar Domestic Water Heating Permitting for One- and Two-Family Dwellings

### GENERAL REQUIREMENTS

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- |  |                            |                            |
|--|----------------------------|----------------------------|
| A. System size is 30 kWth (462 square feet of collector) or less                         | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. The solar array is roof-mounted on one- or two-family dwelling or accessory structure | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| C. The solar collector arrays will not exceed the maximum legal building height          | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| D. Solar collectors are certified by an accredited listing agency                        | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| E. Solar domestic water heating system is certified by an accredited listing agency      | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| F. Permit application is completed and attached  | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| G. System schematic is included  | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| H. List of major components to match system schematic                                    | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| I. Heat transfer fluid is either water or a nontoxic fluid                               | <input type="checkbox"/> Y | <input type="checkbox"/> N |
- 

### PLUMBING REQUIREMENTS

- |  |                            |                            |
|--|----------------------------|----------------------------|
| A. Adequate extreme temperature protection is provided | <input type="checkbox"/> Y | <input type="checkbox"/> N |
|--|----------------------------|----------------------------|

### STRUCTURAL REQUIREMENTS

- |   |                            |                            |
|---|----------------------------|----------------------------|
| A. A completed Structural Criteria and supporting documentation is attached (as required) | <input type="checkbox"/> Y | <input type="checkbox"/> N |
|---|----------------------------|----------------------------|

#### Notes:

*These criteria are intended for streamlined solar permitting process.*

- If any items are checked NO, revise design to fit within Eligibility Checklist, otherwise permit application may go through standard process.*



## Eligibility Checklist for expedited Solar Pool Heating Permitting for One- and Two-Family Dwellings

### GENERAL REQUIREMENTS

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- |  |                            |                            |
|--|----------------------------|----------------------------|
| A. System size is 30 kWth (462 square feet of collector) or less                         | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. The solar array is roof-mounted on one- or two-family dwelling or accessory structure | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| C. The solar collector arrays will not exceed the maximum legal building height          | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| D. Solar collectors are certified by an accredited listing agency                        | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| E. Building Permit application is completed and attached                                 | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| F. Heat transfer fluid is either water or a nontoxic fluid                               | <input type="checkbox"/> Y | <input type="checkbox"/> N |
- 

### PLUMBING REQUIREMENTS

- |  |                            |                            |
|--|----------------------------|----------------------------|
| A. Adequate extreme temperature protection is provided (if applicable)   | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. Standard one-line plumbing diagram is provided with components showing solar interface with existing plumbing | <input type="checkbox"/> Y | <input type="checkbox"/> N |

### STRUCTURAL REQUIREMENTS

- |   |                            |                            |
|---|----------------------------|----------------------------|
| A. A completed Structural Criteria and supporting documentation is attached (as required) | <input type="checkbox"/> Y | <input type="checkbox"/> N |
|---|----------------------------|----------------------------|

#### Notes:

*These criteria are intended for streamlined solar permitting process.*

- If any items are checked NO, revise design to fit within Eligibility Checklist, otherwise permit application may go through standard process.*



## Submittal Requirements Bulletin – Solar Domestic Water Heating Installations 30 kWth or Less in One- and Two-Family Dwellings

This information bulletin is published to guide applicants through a streamlined permitting process for solar domestic water heating (SDWH) projects 30 kWth (462 square feet) in size or smaller. This bulletin provides information about submittal requirements for plan review, required fees and inspections.

### 1. Approval Requirements

The following permit is required to install a SDWH system with a maximum thermal output of 30 kWth or less:

- a) Solar permit.

Planning review is required for SDWH installations of this size.

### 2. Submittal Requirements

- a) Completed permit application form.
- b) Demonstrate compliance with the eligibility checklist for expedited permitting.
- c) A completed Standard Plumbing, Electrical, Structural, and Mechanical Plan.
- d) A roof plan showing roof layout and solar collectors with attachment details.
- e) System schematic, including major components.
- f) Equipment cut sheets including collectors, controller, storage tank/heat exchanger (if applicable).
- g) Completed expedited Structural Criteria checklist along with required documentation.

For systems that do not meet all the requirements in the structural criteria checklist, provide structural drawings and calculations along with the following information:

- The type of roof covering and the number of roof coverings installed
- Type of roof framing, size of members and spacing
- Weight of panels, support locations and method of attachment
- Framing plan and details for any work necessary to strengthen the existing roof structure
- Site-specific structural calculations
- Where an approved racking system is used, provide documentation showing manufacture of the rack system, maximum allowable weight the system can support, attachment method to the roof or ground and product evaluation information or structural design for the rack system

### **3. Plan Review**

Permit applications can be submitted to Building and Safety in person at 320 W. Newmark Ave., Monterey Park, CA 91754 or electronically through the following email [BuildingPermitCounter@montereypark.ca.gov](mailto:BuildingPermitCounter@montereypark.ca.gov).

Permit applications utilizing standard plan may be approved “over the counter” at 320 W. Newmark Ave., Monterey Park, CA 91754. Permit applications may also be submitted electronically for “over the counter” approval at the following email [BuildingPermitCounter@montereypark.ca.gov](mailto:BuildingPermitCounter@montereypark.ca.gov).

Permits not approved “over the counter” should be reviewed in three business days.

### **4. Fees**

Based on valuation of scope of work in accordance with fee resolution.

### **5. Inspections**

Once all permits to construct the solar installation have been issued and the system has been installed, it must be inspected before final approval is granted for the solar system. On-site inspections can be scheduled by contacting Building and Safety at (626) 307-1229 and Planning at (626)307-1315 at (626)307-1308 or electronically at <https://aca.accela.com/montereypark/>. Inspection requests received prior to 4pm of a business day are typically scheduled for the next business day. If next business day is not available, inspection should happen within a five-day window.

Permit holders must be prepared to show conformance with all technical requirements in the field at the time of inspection. The inspector will verify that the installation is in conformance with applicable code requirements and with the approved plans.

The inspection checklist provides an overview of common points of inspection that the applicant should be prepared to show compliance.

### **6. Division of Building and Safety**

For additional information regarding this permit process, please contact Building and Safety Division at <https://aca.accela.com/montereypark/> or at (626) 307-1300.



## Submittal Requirements Bulletin – Solar Pool Heating Installations 30 kWth or Less in One- and Two-Family Dwellings

This information bulletin is published to guide applicants through a streamlined permitting process for solar pool heating (SPH) projects 30 kWth (462 square feet) in size or smaller. This bulletin provides information about submittal requirements for plan review, required fees and inspections.

### 1. Approval Requirements

The following permit is required to install a SPH system with a maximum thermal output of 30 kWth or less:

- a) Solar permit.

Planning review is required for SPH installations of this size.

### 2. Submittal Requirements

- a) Completed permit application form.
- b) Demonstrate compliance with the eligibility checklist for expedited permitting.
- c) A completed Standard Plumbing, Electrical, Structural, and Mechanical Plan.
- d) A roof plan showing roof layout and solar collectors with attachment details.
- e) System schematic (isometric), including major components.
- f) Equipment cut sheets including collectors, controller, motorized valve (if applicable).
- g) Completed expedited Structural Criteria checklist along with required documentation.

For systems that do not meet all the requirements in the structural criteria checklist, provide structural drawings and calculations along with the following information:

- The type of roof covering and the number of roof coverings installed
- Type of roof framing, size of members and spacing
- Weight of panels, support locations and method of attachment
- Framing plan and details for any work necessary to strengthen the existing roof structure
- Site-specific structural calculations
- Where an approved racking system is used, provide documentation showing manufacture of the rack system, maximum allowable weight the system can support, attachment method to the roof or ground and product evaluation information or structural design for the rack system

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Permit applications utilizing standard plan may be approved “over the counter” at 320 W. Newmark Ave., Monterey Park, CA 91754. Permit applications may also be submitted electronically for “over the counter” approval at the following email <https://aca.accela.com/montereypark/>.

Permits not approved “over the counter” should be reviewed in three business days.

### **4. Fees**

Based on valuation of scope of work in accordance with fee resolution.

### **5. Inspections**

Once all permits to construct the solar installation have been issued and the system has been installed, it must be inspected before final approval is granted for the solar system. On-site inspections can be scheduled by contacting Building and Safety at (626) 307-1229 and Planning at (626)307-1315 or electronically at <https://aca.accela.com/montereypark/>. Inspection requests received prior to 4pm of a business day are typically scheduled for the next business day. If next business day is not available, inspection should happen within a five-day window.

Permit holders must be prepared to show conformance with all technical requirements in the field at the time of inspection. The inspector will verify that the installation is in conformance with applicable code requirements and with the approved plans.

The inspection checklist provides an overview of common points of inspection that the applicant should be prepared to show compliance.

### **6. Division of Building and Safety**

For additional information regarding this permit process, please contact Building and Safety Division at <https://aca.accela.com/montereypark/> or at (626) 307-1300.



## Solar Domestic Water Heating Standard Plan for One- and Two-Family Dwellings

SCOPE: Use this plan ONLY for solar domestic water heating systems not exceeding a thermal output rating of 30 kWth on the roof of a one- or two-family dwelling or accessory structure and used for domestic water heating. Systems must be in compliance with current California Building Standards Code, Title 24 and local amendments of the City of Monterey Park. Other articles of the California Plumbing Code (CPC) or California Mechanical Code (CMC) or other California health and safety codes shall apply.

MANUFACTURER'S SPECIFICATION SHEETS MUST BE PROVIDED for proposed collector, controller, pump, storage tank/heat exchanger/heat transfer fluid (if applicable) and mounting systems. Equipment intended for use with SWH system shall be identified and listed for the application.

Job Address: \_\_\_\_\_ Permit #: \_\_\_\_\_

Contractor/Engineer Name: \_\_\_\_\_ License # and Class: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

Total # of Collectors Installed \_\_\_\_\_ Total Area of Collectors \_\_\_\_\_

Collector Certification Number (include certifying agency) \_\_\_\_\_

System Certification Number (include certifying agency) \_\_\_\_\_

Max Height Above Roof \_\_\_\_\_ Height Above Ground \_\_\_\_\_

### Major Components (for SDWH systems)

Solar Tank Make/Model \_\_\_\_\_ Gallons \_\_\_\_\_ Insulation R- \_\_\_\_\_ Pressurized?

Heat Exchanger Make/Model \_\_\_\_\_ Number of Walls \_\_\_\_\_ Heat Exchange Fluid

Solar Control Make/Model \_\_\_\_\_

Solar Pump/Circulator Make/Model \_\_\_\_\_

Expansion Tank Make/Model \_\_\_\_\_ Appropriately Sized for Use? \_\_\_\_\_

Mounting Hardware Make/Model or Type \_\_\_\_\_

Do all the above data match substantially the data used for certification? \_\_\_\_\_



## Solar Pool Heating Standard Plan for One- and Two-Family Dwellings

SCOPE: Use this plan ONLY for solar pool heating systems not exceeding a thermal output rating of 30 kWth on the roof of a one- or two-family dwelling or accessory structure and used for residential solar pool heating. Systems must be in compliance with current California Building Standards Code, Title 24 and local amendments of the City of Monterey Park. Other articles of the California Plumbing Code (CPC) or California Mechanical Code (CMC) or other health and safety codes shall apply.

MANUFACTURER'S SPECIFICATION SHEETS MUST BE PROVIDED for proposed collector, controller, solar pump (if applicable), heat exchanger/heat transfer fluid (if applicable), diverting valve (if applicable) and mounting systems. Equipment intended for use with a solar pool heating system shall be identified and listed for the application.

Job Address: \_\_\_\_\_ Permit #: \_\_\_\_\_

Contractor/Engineer Name: \_\_\_\_\_ License # and Class: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

Total # of Collectors Installed \_\_\_\_\_ Total Collector Area \_\_\_\_\_

Collector Certification Number (include certifying agency) \_\_\_\_\_

Collector Material \_\_\_\_\_

Max Height Above Roof \_\_\_\_\_ Height Above Ground \_\_\_\_\_

### Major components

Solar Control Make/Model \_\_\_\_\_

Solar Pump Make/Model (if applicable) \_\_\_\_\_

Diverting Valve Make/Model \_\_\_\_\_

Mounting Hardware Make/Model or Type \_\_\_\_\_

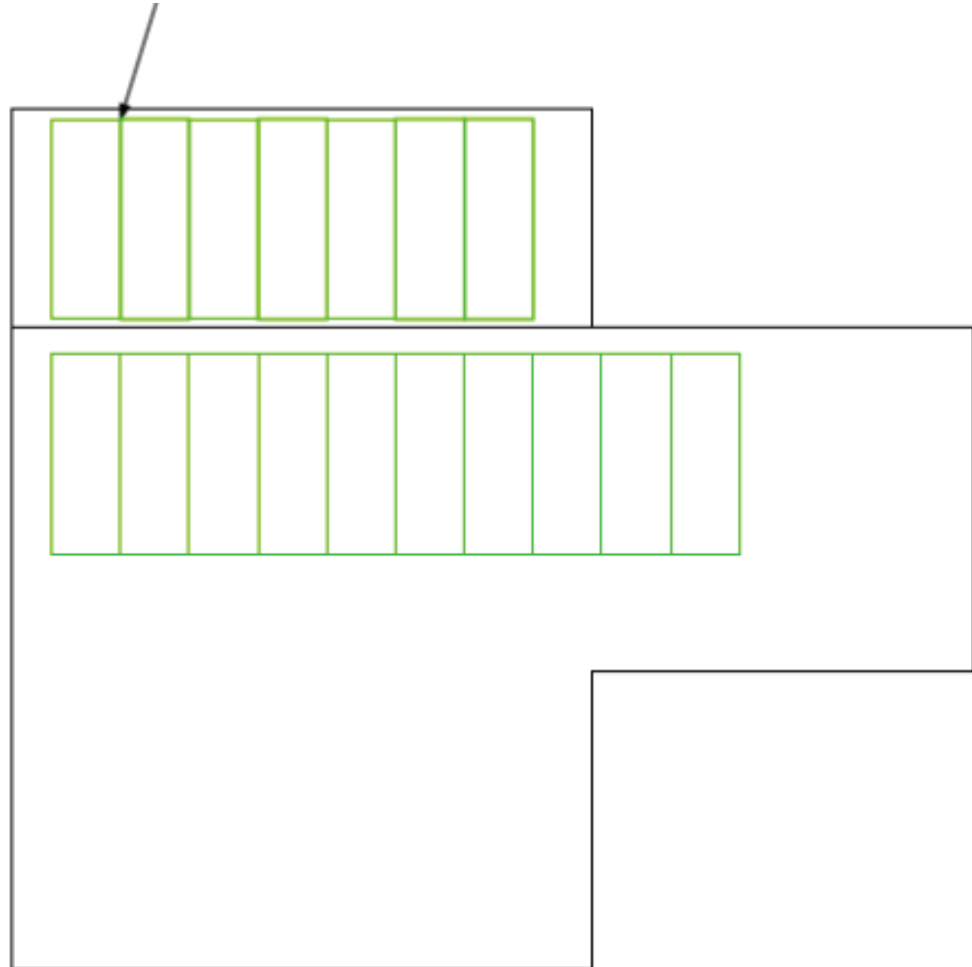


## SAMPLE ROOF PLAN for SDWH and SPH systems

- ROOF TYPE: STANDING SEAM
- ROOF HEIGHT (Elevation): MAX 15' (1 story)
- RAFTERS: 2" X 6" @ 24" OC

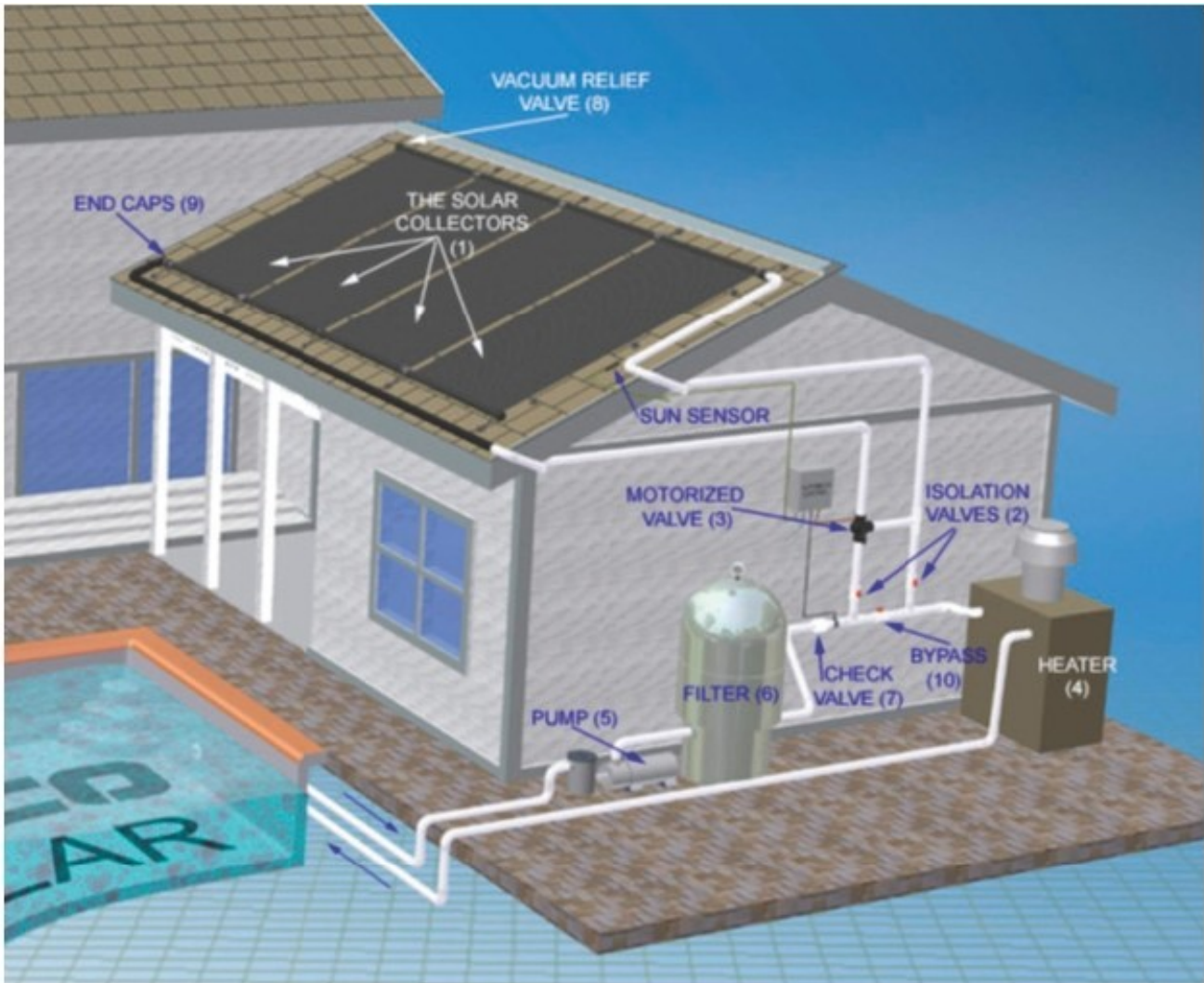


(18) 4'x12' XXX PANELS



# SAMPLE ONE LINE PLUMBING DIAGRAM

For SPH Systems





## Structural Criteria for Residential Rooftop Solar Energy Installations

### Use of this document

This document includes a one-page list of structural criteria for over-the-counter or online approval, as well as attached tables and figures that supplement the criteria and explain their use.

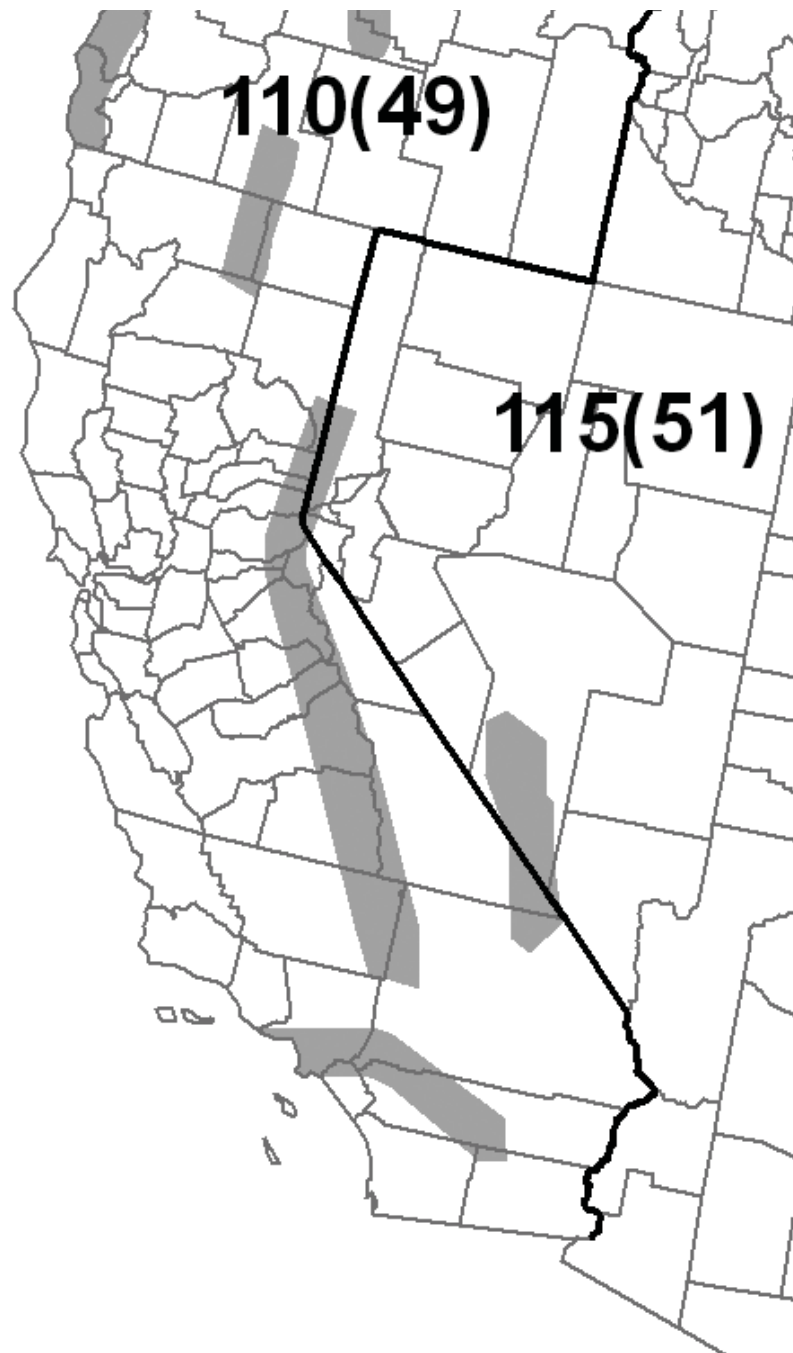
This document applies to flush-mounted solar arrays installed on the roofs of wood-framed one- and two family dwellings. "Flush-mounted" means the modules are installed parallel to, and relatively close to, the roof surface (see the "Solar Array Check" section of the Structural Criteria for specific qualifying requirements).

This list is intended to be a simple pre-installation check to gain reasonable assurance that the design of the solar array complies with the structural provisions of the 2016 California Building Code (CBC) and 2016 California Residential Code (CRC). It is not intended to provide post-installation inspection criteria.

### Regional and Site Assumptions

This document is based on the following regional and site assumptions:

- If in Wind Exposure B (urban, suburban or wooded areas), the dwelling may be located:
  - in a Special Wind Region (see Map 2) with design wind speeds between 110 and 130 mph, or
  - on a tall hill, provided average slope is no steeper than 15%.
- If in Wind Exposure C (within 500 yards of large open fields or grasslands), the dwelling is:
  - in a standard 110 mph design wind speed region, and
  - not on a hill with a grade steeper than 5%.



**Map 1. California Design Wind Speed Map (Ref: ASCE 7-10).**

The number outside the parentheses represents the design wind speed in mph. Typical design wind speed is 110 mph. The gray shaded areas on the map indicate “Special Wind Regions” where higher wind speeds may apply. When the project is in a gray shaded area, contact the local building department for the design wind speed.

# STRUCTURAL CRITERIA FOR RESIDENTIAL FLUSH-MOUNTED SOLAR ARRAYS

## 1. ROOF CHECKS

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### A. Visual Review/Contractor's Site Audit of Existing Conditions:

- 1) Is the roof a shingle roof without a reroof overlay?  Y  N
- 2) Does the roof structure appear structurally sound, without signs of alterations or significant structural deterioration or sagging, as illustrated in Figure 1?  Y  N

### B. Roof Structure Data:

- 1) Measured roof slope (e.g. 6:12): \_\_\_\_\_:12
- 2) Measured rafter spacing (center-to-center): \_\_\_\_\_ inch
- 3) Type of roof framing (rafter or manufactured truss):  Rafter  Truss
- 4) Measured rafter size (e.g. 13/4 x 33/4, not 2x4): \_\_\_\_\_ x \_\_\_\_\_ inch
- 5) Measured rafter horizontal span (see Figure 4): \_\_\_\_\_' - \_\_\_\_\_"ft-in
- 6) Horizontal rafter span per Table 2: \_\_\_\_\_' - \_\_\_\_\_"ft-in
- 7) Is measured horizontal rafter span less than Table 2 span?  Y  N  Truss

## 2. SOLAR ARRAY CHECKS

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### A. Flush-mounted Solar Array:

- 1) Is the plane of the modules (panels) parallel to the plane of the roof?  Y  N
- 2) Is there a 2" to 10" gap between underside of module and the roof surface?  Y  N
- 3) Modules do not overhang any roof edges (ridges, hops, gable ends, eaves)?  Y  N

### B. Do the modules plus support components weigh no more than:

- 4 psf for photovoltaic arrays or 5 psf for solar thermal arrays?  Y  N

### C. Does the array cover no more than half of the total roof area (all roof planes)? Y N

### D. Are solar support component manufacturer's project-specific completed worksheets, tables with relevant cells circled, or web-based calculator results attached? Y N

### E. Is a roof plan of the module and anchor layout attached? (see Figure 2) Y N

### F. Downward Load Check (Anchor Layout Check):

- 1) Proposed anchor horizontal spacing (see Figure 2): \_\_\_\_\_' - \_\_\_\_\_"ft-in
- 2) Horizontal anchor spacing per Table 1: \_\_\_\_\_' - \_\_\_\_\_"ft-in
- 3) Is proposed anchor horizontal spacing less than Table 1 spacing?  Y  N

### G. Wind Uplift Check (Anchor Fastener Check):

- 1) Anchor fastener data (see Figure 3):
- a. Diameter of lag screw, hanger bolt or self-drilling screw: \_\_\_\_\_ inch
- b. Embedment depth of rafter: \_\_\_\_\_ inch
- c. Number of screws per anchor (typically one): \_\_\_\_\_
- d. Are 5/16" diameter lag screws with 2.5" embedment into the rafter used, OR does the anchor fastener meet the manufacturer's guidelines?  Y  N

## 3. SUMMARY

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A. All items above are checked YES. No additional calculations are required.

B. One or more items are checked NO. Attach project-specific drawings and calculations stamped and signed by a California-licensed Civil or Structural Engineer.

Job Address: \_\_\_\_\_ Permit #: \_\_\_\_\_

Contractor/Installer: \_\_\_\_\_ License # & Class: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Phone #: \_\_\_\_\_

Table 1. Maximum Horizontal Anchor Spacing				
Roof Slope		Rafter Spacing		
		16" o.c.	24" o.c.	32" o.c.
Photovoltaic Arrays (4 psf max)				
Flat to 6:12	0° to 26°	5'-4"	6'-0"	5'-4"
7:12 to 12:12	27° to 45°	1'-4"	2'-0"	2'-8"
13:12 to 24:12	46° to 63°	1'-4"	2'-0"	2'-8"
Solar Thermal Arrays (5 psf max)				
Flat to 6:12	0° to 26°	4'-0"	4'-0"	5'-4"
7:12 to 12:12	27° to 45°	1'-4"	2'-0"	2'-8"
13:12 to 24:12	46° to 63°	Calc. Req'd	Calc. Req'd	Calc. Req'd

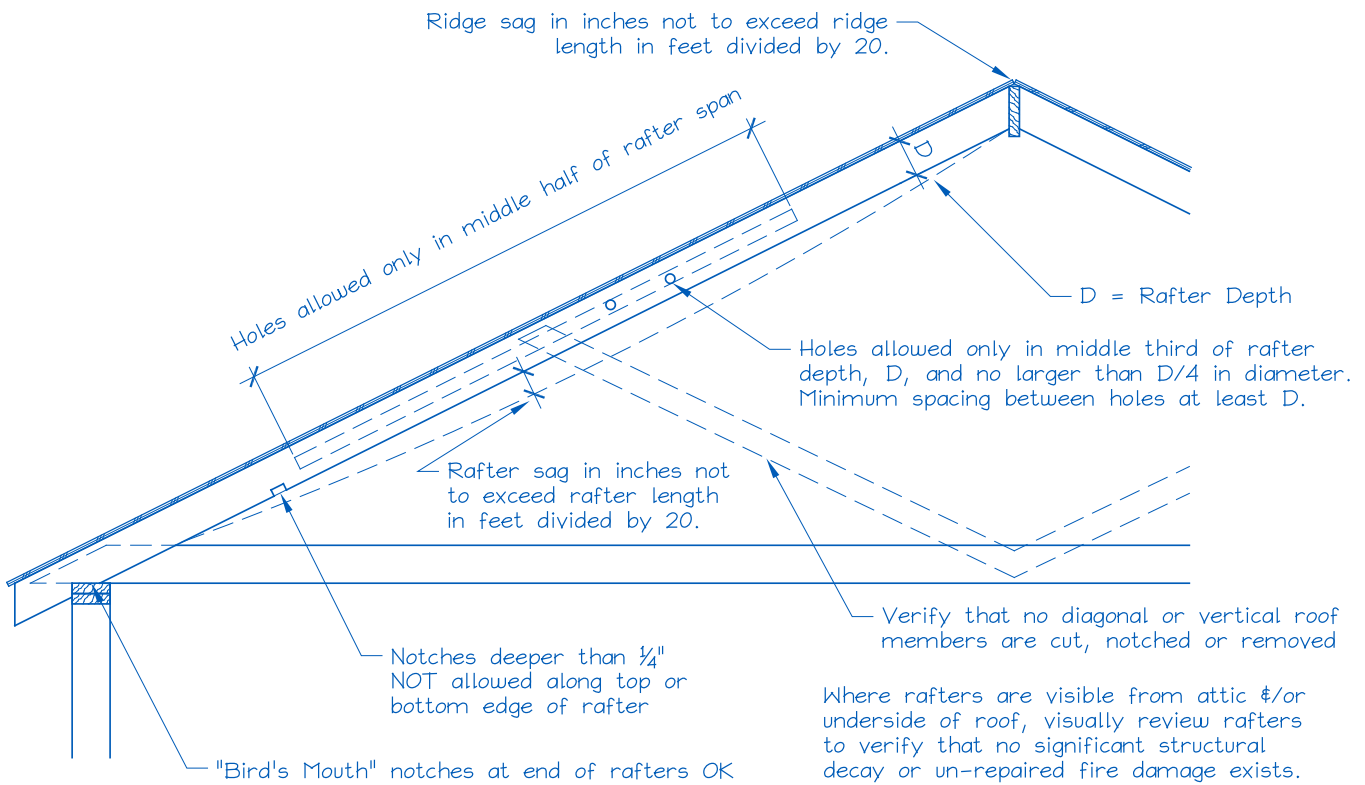
Table 1 Notes:

1. Anchors are also known as “stand-offs”, “feet”, “mounts” or “points of attachment”. Horizontal anchor spacing is also known as “cross-slope” or “east-west” anchor spacing (see Figure 2).
2. If anchors are staggered from row-to-row going up the roof, the anchor spacing may be twice that shown above, but no greater than 6'-0”.
3. For manufactured plated wood trusses at slopes of flat to 6:12, the horizontal anchor spacing shall not exceed 4'-0” and anchors in adjacent rows shall be staggered.
4. This table is based on the following assumptions:
  - The roof structure conformed to building code requirements at the time it was built.
  - The attached list of criteria are met.
  - Mean roof height is not greater than 40 feet.
  - Roof sheathing is at least 7/16” thick oriented strand board or plywood. 1x skip sheathing is acceptable.
  - If the dwelling is in Wind Exposure B (typical urban, suburban or wooded areas farther than 500 yards from large open fields), no more than one of the following conditions apply:
    - The dwelling is located in a special wind region with design wind speed between 115 and 130 mph per ASCE 7-10, or
    - The dwelling is located on the top half of a tall hill, provided average slope steeper is less than 15%.
  - If the dwelling is In Wind Exposure C (within 500 yards of large open fields or grasslands), all of the following conditions apply:
    - Design wind speed is 110 mph or less (not in a Special Wind Region), and
    - The dwelling is not located on the top half of a tall hill.
  - The solar array displaces roof live loads (temporary construction loads) that the roof was originally designed to carry.
  - The Structural Technical Appendix provides additional information about analysis assumptions.

Table 2. Roof Rafter Maximum Horizontal Span (feet - inches) <sup>1</sup>								
Assumed Vintage	Nominal Size	Actual Size	Non-Tile Roof <sup>2</sup>			Tile Roof <sup>3</sup>		
			Rafter Spacing					
			16" o.c.	24" o.c.	32" o.c.	16" o.c.	24" o.c.	32" o.c.
Post-1960	2x4	1½"x3½"	9'-10"	8'-0"	6'-6"	8'-6"	6'-11"	5'-6"
	2x6	1½"x5½"	14'-4"	11'-9"	9'-6"	12'-5"	10'-2"	8'-0"
	2x8	1½"x7¼"	18'-2"	14'-10"	12'-0"	15'-9"	12'-10"	10'-3"
Pre-1960	2x4	1¾"x3¾"	11'-3"	9'-9"	7'-9"	10'-3"	8'-6"	6'-9"
	2x6	1¾"x5¾"	17'-0"	14'-0"	11'-3"	14'-9"	12'-0"	9'-9"
	2x8	1¾"x7¾"	22'-3"	18'-0"	14'-6"	19'-0"	15'-6"	12'-6"

Table 2 Notes:

1. See Figure 4 for definition of roof rafter maximum horizontal span.
2. "Non-tile Roof" = asphalt shingle, wood shingle & wood shake, with an assumed roof assembly weight of 10 psf.
3. "Tile Roof" = clay tile or cement tile, with an assumed roof assembly weight of 20psf
4. Unaltered manufactured plated-wood trusses may be assumed to be code compliant and meet intent of Table 2.
5. This table is based on the following assumptions:
  - Span/deflection ratio is equal to or greater than 180.
  - For post-1960 construction, wood species and grade is Douglas Fir-Larch No. 2.
  - For pre-1960 construction, wood species and grade is Douglas Fir-Larch No. 1.
  - Other wood species and/or grade are also acceptable if allowable bending stress is equal or greater to that listed above.

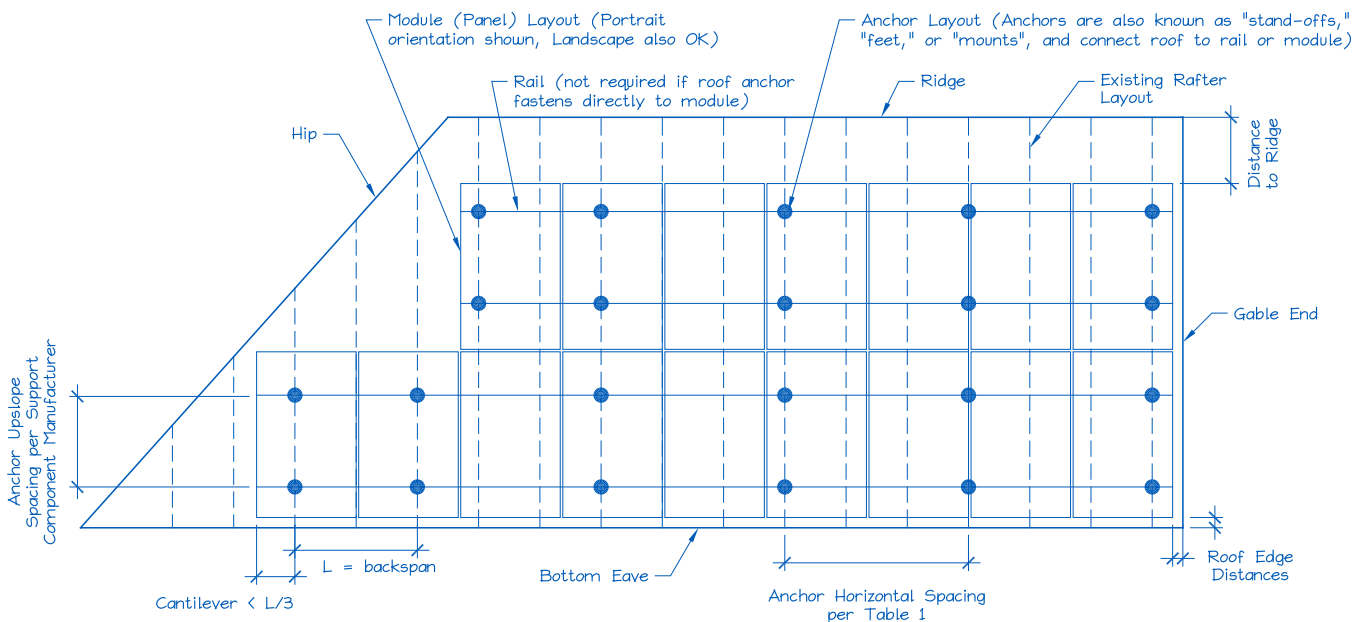


**Figure 1. Roof Visual Structural Review (Contractor's Site Audit) of Existing Conditions.**

The site auditor should verify the following:

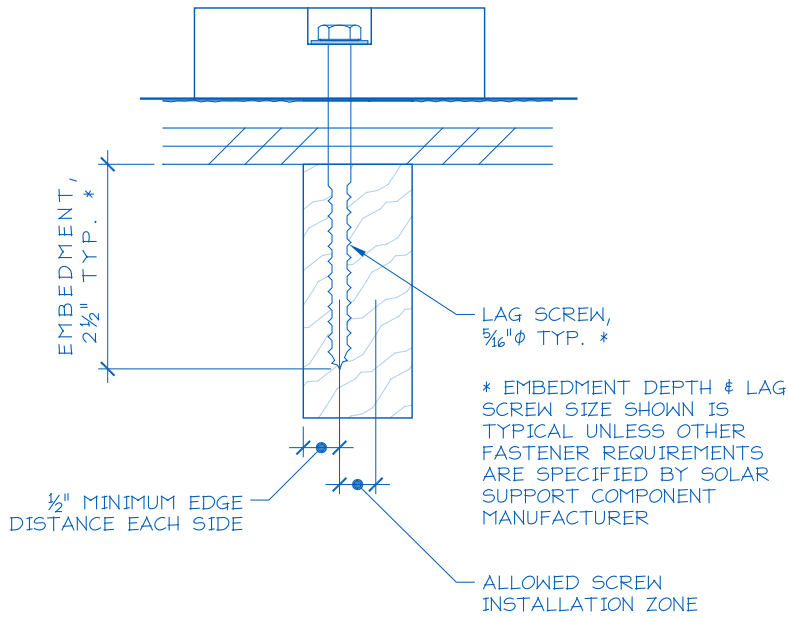
6. No visually apparent disallowed rafter holes, notches and truss modifications as shown above.
7. No visually apparent structural decay or un-repaired fire damage.
8. Roof sag, measured in inches, is not more than the rafter or ridge beam length in feet divided by 20.

Rafters that fail the above criteria should not be used to support solar arrays unless they are first strengthened.

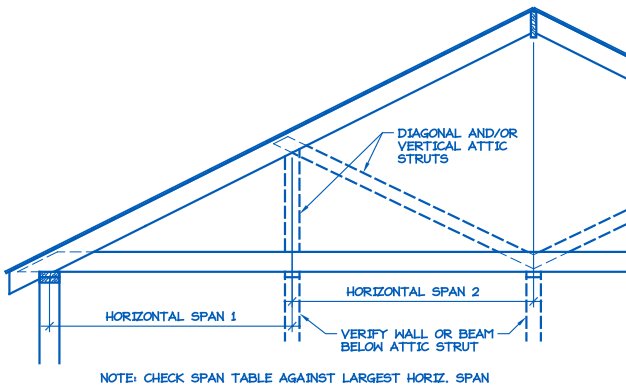


**Figure 2. Sample Solar Panel Array and Anchor Layout Diagram (Roof Plan).**

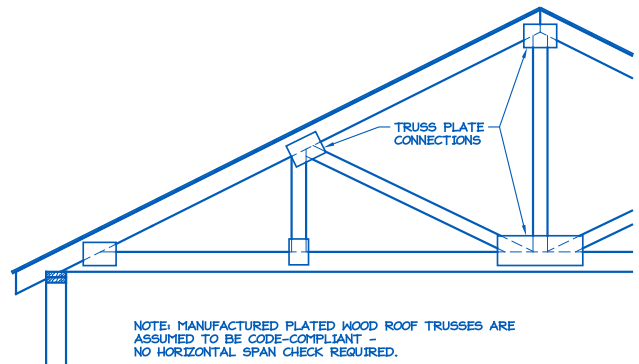




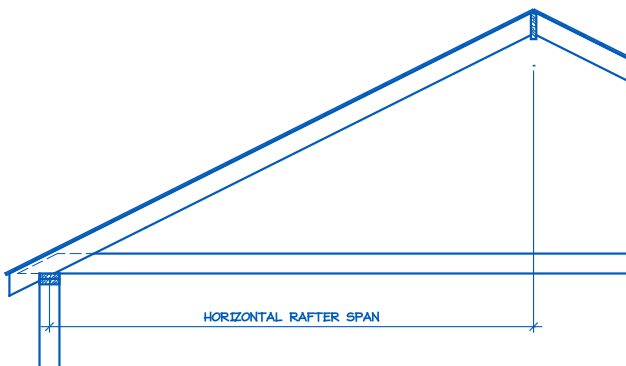
**Figure 3. Typical Anchor with Lag Screw Attachment.**



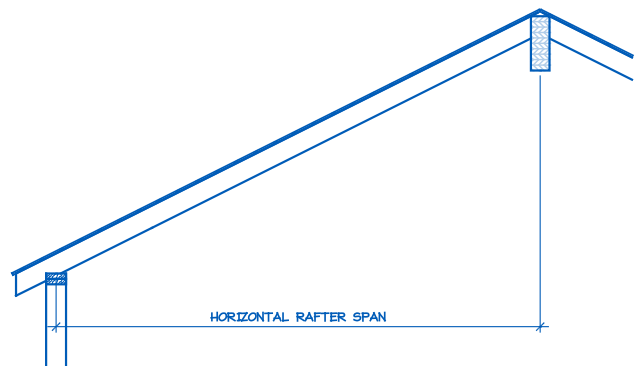
**C** STRUTS TO WALLS BELOW



**D** MANUFACTURED PLATED WOOD ROOF TRUSS



**A** SIMPLE ATTIC



**B** CATHEDRAL CEILING

**Figure 4. Definition of Rafter Horizontal Span.**



## **Inspection Guide for SDWH Systems in One- and Two-Family Dwellings**

This document is a field inspection guide for SDWH systems. These inspection references detail most of the issues that relate to SDWH systems during the inspection process.

All California Electrical Code (CEC), California Residential Code (CRC), California Building Code (CBC), California Mechanical Code (CMC), California Plumbing Code (CPC), and California Energy Code (CEnC) references are to the 2016 versions unless otherwise noted.

SOLAR DOMESTIC WATER HEATING SYSTEM ELIGIBILITY			
SYSTEM	Criteria		Yes
		1. Major components installed match those of certified system?	
SOLAR DOMESTIC WATER HEATING INSPECTION GUIDE			
	Guideline	Source of Guideline	Yes
ROOF	I. Roof penetrations/attachments are properly flashed	CBC Chap. 15, CRC Chap. 9	
SOLAR LOOP PIPING	I. Piping must be properly supported, hung and anchored per code	CPC 313.1	
	II. Solar piping properly insulated	CEnC 120.3	
	III. Dissimilar materials isolated, as required	CPC 310.6	
	IV. Penetrations through structural members as per code	CPC 312.2	
	V. Penetrations through fire-resistant assemblies installed per code	CPC 1405.2	
	VI. System has adequate freeze protection	CPC 312.6	
	VII. System overheat protection	CPC 505.2	
	VIII. Expansion tank sized correctly (indirect system) according to need for operation or overheat protection?	CMC 1004.3, 1004.4	
	IX. Pressure relief/temperature relief valve(s) installed per design (if applicable)	CPC 608.4 & 608.5	
	X. Piping labels show type of fluid and direction of flow	CPC 601.2	
	XI. Drain and fill valves capped and labeled	CPC 601.2	
STORAGE TANK	I. Tank labeled with pressure rating for pressurized storage	CPC 505.4	
	II. Relief drain installed properly for pressurized storage	CPC 504.6, CMC 1005.1	
	III. Heat exchanger must protect potable water system from being contaminated by the heat transfer medium	CPC 603.5.4	
	IV. Tank installed in garage meets code requirements	CPC 507.13	
	V. Pan installed under tank (as required)	CPC 507.5	
	VI. Tank installed on level surface	CPC 508.4.3	
	VII. Tank supported for seismic loads	CPC 507.2	
	VIII. All valves, fittings and solders are rated for potable systems and meeting CA lead law requirements	CPC 604.1	
	IX. Unions installed within 12" of tank connections for all piping to and from tank and heat exchangers	CPC 609.5	

POTABLE PIPING	I. All valves, fittings and solders are rated for potable systems and meeting CA lead law requirements	CPC 604.1	
	II. Potable water piping properly labeled	CPC 601.3	
	III. Any connection to PEX is more than 18" from tank fittings	CPC 604.13	
	IV. Hot water service piping insulated properly	CEnC 120.3	
	V. Vacuum relief valve properly installed (if required)	CPC 603.5.4, 608.7	
CONTROLS	I. Control and pump disconnect(s) properly installed	CEC 430 (IX), 690.17	
	II. Conductors between control and power source properly installed	CEC 430 (II)	
	III. Conductors between control and pump properly installed	CEC 430 (II), 690 (IV)	
	IV. Solar collector sensors protected from sun and weather	CEC 310.10, D(1), D(2)	
	V. Control relay rated higher than load for each output	CEC 430.83	



## Inspection Guide for Solar Pool Heating Systems in One- and Two-Family Dwellings

This document is a field inspection guide for SPH systems. These inspection references detail most of the issues that relate to SPH systems during the inspection process.

All California Electrical Code (CEC), California Residential Code (CRC), California Building Code (CBC), California Mechanical Code (CMC), and California Plumbing Code (CPC) references are to the 2016 versions unless otherwise noted.

SOLAR POOL HEATING SYSTEM ELIGIBILITY			
SYSTEM	Criteria		Yes
		1. Major components installed match those of certified system?	
SOLAR POOL HEATING INSPECTION GUIDE			
	Guideline	Source of Guideline	Yes
ROOF	I. Roof penetrations/attachments are properly flashed	CBC Chap. 15, CRC Chap. 9	
SOLAR LOOP PIPING	I. Piping properly supported	CPC 313.1	
	II. Vacuum relief valve installed (if required by manufacturer)	CPC 504.6, 608.7	
	III. Drain valves installed if the system is not self-draining	CPC 312.6	
	IV. Penetrations through structural members as per code	CPC 312.2	
	V. Penetrations through fire-resistant assemblies installed per code	CPC 1405.2	
	VI. System has adequate freeze protection	CPC 312.6	
CONTROLS	I. Control and pump properly installed and bolted to pad	CEC 430 (IX), 690.17	
	II. Conductors between control and power source properly installed	CEC 430 (II)	
	III. Conductors between control and pump properly installed	CEC 430 (II), 690 (IV)	
	IV. Solar collector sensors protected from sun and weather	CEC 310.10, D(1), D(2)	
	V. Control relay rated higher than load for each output	CEC 430.83	