



COMMUNITY DEVELOPMENT DEPARTMENT
220 E. Mountain View Street, Suite A • Barstow, CA 92311 • PH. 760-255-5161

Application Submittal, Plan Review and Inspection Procedures for Expedited Solar Photovoltaic Permitting for One-and Two-Family Dwellings (10kW or Less)

APPROVAL REQUIREMENTS

The following permits are required to install a solar PV system with a maximum power output of 10 kW or less:

- Building Permit
- Electrical Permit, if an electrical panel upgrade is done as part of the Solar Photovoltaic System installation

The following City departments review the submittal for expedited solar photovoltaic permit:

- Building Department
- Barstow Fire Protection District.
(Fire review is coordinated by the City of Barstow's Building Department. A separate submittal to the Barstow Fire Protection District ***is not*** required.)

SUBMITTAL REQUIREMENTS

1. Completed City of Barstow Building Permit Application form. This permit application form can be downloaded at www.barstowca.org or can be requested by email to building@barstowca.org or by calling the Building Department at (760) 255-5161.
2. Letter of Authorization to pull permit on behalf of home owner or contractor, if required.
3. Demonstrate compliance with the Eligibility Checklist for Expedited Solar Photovoltaic Permitting for One- and Two-Family Dwellings to qualify for expedited permit processing. The eligibility check criteria can be downloaded at www.barstowca.org.
4. Submittal of an electrical plan that includes the following:
 - Locations of main service or utility disconnect
 - Total number of modules, number of modules per string and the total number of strings
 - Make and model of inverter(s) and/or combiner box if used
 - Single-line diagram of system
 - Specify grounding/bonding, conductor type and size, conduit type and size and number of conductors in each section of conduit
 - **If batteries are to be installed, include them in the diagram and show their locations and venting**
 - Equipment cut sheets including inverters, modules, AC and DC disconnects, combiners and wind generators
 - Labeling of equipment as required by CEC, Sections 690 and 705
 - Site diagram showing the arrangement of panels on the roof or ground, north arrow, lot dimensions and the distance from property lines to adjacent buildings/structures (existing and proposed)
5. A roof plan showing roof layout, PV panels and the following fire safety items: approximate location of roof access point, location of code-compliant access pathways, PV system fire classification and the locations of all required labels and markings. Examples of clear path access pathways are available in the State Fire Marshal Solar PV Installation Guide, <http://osfm.fire.ca.gov/pdf/reports/solarphotovoltaicguideline.pdf>.
6. Completed *Structural Criteria for Residential Flush-Mounted Solar Arrays* form along with required documentation, if required. The Structural Criteria for Residential Flush-Mounted Solar Arrays form Structural Criteria can be downloaded at the City's website, www.barstowca.org.

For non-qualifying systems, provide structural drawings and calculations stamped and signed by a California-licensed civil or structural engineer, 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 manufacturer 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.
6. Permit Fee, as per the most currently adopted City of Barstow Master Fee Schedule.

3. PLAN REVIEW

Permit application(s), the *Eligibility Checklist for Expedited Solar Photovoltaic Permitting for One- and Two-Family Dwellings*, and the *Structural Criteria for Residential Flush-Mounted Solar Arrays* can be obtained at:

- The City of Barstow's Building Department Counter located at 220 E. Mountain View Street, Barstow, CA 92311
- The City of Barstow's website, www.barstowca.org
- Requested by email to building@barstowca.org
- Requested by calling the City of Barstow's Building Department at (760) 255-5161

Permit application(s) and associated documents can be submitted in paper or digital format to the City of Barstow's Building Department in person or by mail/courier to 220 E. Mountain View St., Barstow, CA, electronically by e-mail to building@barstowca.org, or by facsimile to (760) 256-1750. Digital signature will be accepted in lieu of wet signature.

Permits application submittals are reviewed within three (3) business days using the California Building Codes most recently adopted by the City of Barstow (currently the 2013 editions). Reviewed plans that receive corrections and are re-submitted by the applicant, will be reviewed and returned within three (3) business days (per re-check).

Upon approval of a complete application submittal, any applicable building and/or electrical permit(s) will be issued.

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 the City of Barstow's Building Department by telephone at (760) 255-5161 or electronically at building@barstowca.org. Inspection requests received by the Building Department during operating hours are typically scheduled for the next business day. If next business day is not available the inspection will be scheduled within three (3) business days. A two (2) hour window will be provided to the requester.

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.

Common points of inspection that the applicant should be prepared to show compliance include the following:

- Number of PV modules and model number match plans and specification sheets number match plans and specification sheets.
- Array conductors and components are installed in a neat and workman-like manner.
- PV array is properly grounded.
- Electrical boxes are accessible and connections are suitable for environment.
- Array is fastened and sealed according to attachment detail.
- Conductor's ratings and sizes match plans.
- Appropriate signs are properly constructed, installed and displayed, including the following:
 - Sign identifying PV power source system attributes at DC disconnect
 - Sign identifying AC point of connection
 - Sign identifying switch for alternative power system
- Equipment ratings are consistent with application and installed signs on the installation, including the following:
 - Inverter has a rating as high as max voltage on PV power source sign.
 - DC-side overcurrent circuit protection devices (OCPDs) are DC rated at least as high as max voltage on sign.
 - Switches and OCPDs are installed according to the manufacturer's specifications (i.e., many 600VDC switches require passing through the switch poles twice in a specific way).
 - Inverter is rated for the site AC voltage supplied and shown on the AC point of connection sign.
 - OCPD connected to the AC output of the inverter is rated at least 125% of maximum current on sign and is no larger than the maximum OCPD on the inverter listing label.
 - Sum of the main OCPD and the inverter OCPD is rated for not more than 120% of the bus bar rating.

6. DEPARTMENTAL CONTACT INFORMATION

For additional information regarding this permit process, please consult our departmental page on the City of Barstow's website at www.barstowca.org or contact the City of Barstow's Building Department at (760) 255-5161.



PERMIT NUMBER: BSOL - _____

BUILDING DEPARTMENT
Residential Solar Energy System Permit Application (<10kw)
One- and Two-Family Dwellings

APPLICANT INFORMATION			
APPLICANT'S NAME <input type="checkbox"/> TENANT <input type="checkbox"/> CONTRACTOR <input type="checkbox"/> ENGINEER <input type="checkbox"/> ARCHITECT		TELEPHONE NUMBER ()	
IF APPLICANT IS A BUSINESS, PLEASE LIST THE PRIMARY CONTACT	TELEPHONE NUMBER ()	EMAIL ADDRESS	
APPLICANT'S PHYSICAL ADDRESS	CITY	STATE	ZIP
APPLICANT'S MAILING ADDRESS	CITY	STATE	ZIP

PROPERTY OWNER(S) INFORMATION <input type="checkbox"/> SAME AS APPLICANT INFORMATION			
PROPERTY OWNER(S) NAME		TELEPHONE NUMBER ()	
PROPERTY OWNER'S PHYSICAL ADDRESS	CITY	STATE	ZIP
PROPERTY OWNER'S MAILING ADDRESS	CITY	STATE	ZIP

CONTRACTOR INFORMATION			
CONTRACTOR'S NAME		STATE LICENSE #	EXPIRATION
ADDRESS		CITY	STATE ZIP
PHONE NUMBER ()	FAX NUMBER ()	EMAIL ADDRESS	
WORKER'S COMPENSATION CARRIER (INCLUDE COPY OF CERTIFICATE)		POLICY #	EXPIRATION

PROJECT INFORMATION	
PROJECT ADDRESS <input checked="" type="checkbox"/> RESIDENTIAL <input type="checkbox"/> COMMERCIAL	ASSESSOR'S PARCEL NUMBER (APN)
CHECK ALL WHICH APPLY:	
<input type="checkbox"/> NEW BUILDING	<input type="checkbox"/> ADDITION
<input type="checkbox"/> DEMOLITION	<input type="checkbox"/> FIREPLACE
<input type="checkbox"/> SWIMMING POOL/SPA	<input type="checkbox"/> FIRE REPAIR
<input type="checkbox"/> BLOCK WALL	<input type="checkbox"/> ELECTRICAL
<input type="checkbox"/> ALTERATION	<input type="checkbox"/> FOUNDATION ONLY
<input type="checkbox"/> REROOF _____ SQ. FT.	<input type="checkbox"/> MECHANICAL
<input type="checkbox"/> BLOCK WALLS	<input type="checkbox"/> SIGN
<input type="checkbox"/> PLUMBING	<input type="checkbox"/> DECK/PATIO COVER
<input checked="" type="checkbox"/> OTHER: RESIDENTIAL SOLAR ENERGY SYSTEM (ONE OR TWO-FAMILY DWELLING) <10kW	

Continued On Reverse Side

PLEASE BE SURE THAT FRONT SIDE IS COMPLETED. THANK YOU.

PROJECT INFORMATION (CONTINUED)

EXISTING: Floor Area _____ sq. ft. Garage: _____ Other: _____ # of Units: _____

PROPOSED: Floor Area _____ sq. ft. Garage: _____ Other: _____ # of Units: _____

SETBACKS: Front: _____ Rear: _____ Left: _____ Right: _____

of Bedrooms: _____ # of Bathrooms: _____ Total # of Rooms: _____

Lot Size: _____ Lot Dimension: _____ Lot Coverage %: _____

DESCRIPTION OF WORK: RESIDENTIAL SOLAR ENERGY SYSTEM <10kW

Number of Panels: _____ Size of Solar Energy System: _____

Electrical Panel Upgrade Required? Yes / No If Yes, Size of Panel: _____ amp

Installation of Sub-Panel Required? Yes / No If Yes, Size of Sub-Panel: _____ amp

CONSTRUCTION VALUATION: \$

CERTIFICATE OF COMPLIANCE AND AUTHORIZATION OF ENTRY:

I certify that I have read this application and state the information provided is true and correct. I agree to comply with all State laws and City ordinances relating to the construction to which this permit is issued. I authorize the City of Barstow's Building Department representative(s) to enter upon the property for which this building permit is issued for the purpose of conducting related inspections.

SIGNATURE	PRINTED NAME	DATE

For Office Use Only

DATE APPLICATION RECEIVED	APPROVED BY



LETTER OF AUTHORIZATION

AUTHORIZATION OF AGENT TO ACT ON BEHALF OF PROPERTY OWNER, BUSINESS OWNER AND/OR LICENSED CONTRACTOR

I hereby authorize the following person(s) to act as an agent(s) to apply for, sign, and file the documents necessary to obtain any business license and/or building permit for the below referenced project.

Date of Authorization: _____

Term of Authorization (Please select one): **One-Time Authorization** **Annual Authorization**

Type of Authorization (Please select one):

Business License Only **Building Permit(s) Only** **Business License AND Building Permit(s)**

PROJECT INFORMATION *If this is an annual authorization or a business license only authorization, please proceed to next section.*

Permit Number: _____ Project Address: _____

Scope of Construction Project (or Description of Work): _____

PROPERTY OWNER / BUSINESS OWNER / CONTRACTOR'S INFORMATION

Property Owner / Business / Contractor's Name: _____

Name of Authorized Business Owner/Officer (If Business or Contractor): _____

California State Contractor's License Number (If Appl.): _____ Classification: _____

Property Owner / Business / Contractor's Address: _____

City: _____ State: _____ Zip: _____ Phone: _____

AUTHORIZED AGENT INFORMATION

*Please note that authorized agent will be required to provide identification at time of business license and/or building permit application/issuance *

Please check this box if you are authorizing more than one agent and attach a listing of all agents who you authorize to act on your behalf.

Name of Authorized Agent: _____ Phone No.: _____

Address of Authorized Agent: _____

DECLARATION

I declare under penalty of perjury that I am the authorized owner and/or officer of the above referenced property, business and/or contractor license and certify to the accuracy of the contents provided on this authorization form. **(Note: Form notarization or a copy of the property owner's, business owner's and/or licensed contractor's government issued identification must be attached to this authorization form.) THIS ORIGINAL AUTHORIZATION FORM, CONTAINING AN ORIGINAL SIGNATURE, MUST BE FURNISHED AND REMAIN ON FILE WITH THE CITY OF BARSTOW.**

If this is an annual authorization, a copy of this authorization form (which has been approved by the City of Barstow) will be required to be submitted for each building permit or business license that is signed by an authorized agent. I acknowledge and authorize that an approved copy of this authorization form shall be as valid as the original. I can revoke this authorization at any time upon written notification to the City of Barstow.

Signature: _____ Printed Name: _____ Date: _____

CITY OF BARSTOW USE ONLY (Rev. 05/2015)
APPROVED BY: _____ TITLE: _____ AUTHORIZATION EXPIRATION DATE: _____



COMMUNITY DEVELOPMENT DEPARTMENT
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Eligibility Checklist for Expedited Solar Photovoltaic Permitting for One- and Two-Family Dwellings

Applicant's Name: _____

Project Address: _____

GENERAL REQUIREMENTS

- | | | |
|---|----------------------------|----------------------------|
| A. System size is 10 kW AC CEC rating or less | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. The solar array is roof mounted on one- or two-family residential dwelling or accessory structure | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| C. The solar panel/module arrays will not exceed the maximum legal building height | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| D. Solar system is utility interactive and without battery storage | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| E. City of Barstow Building Permit application is completed and attached | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| F. Authorization Letter to pull permit on behalf of license contractor/property owner is attached (if required) | <input type="checkbox"/> Y | <input type="checkbox"/> N |

ELECTRICAL REQUIREMENTS

- | | | |
|--|----------------------------|----------------------------|
| A. No more than four photovoltaic module strings are connected to each Maximum Power Point Tracking (MPPT) input where source circuit fusing is included in the inverter | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 1) No more than two strings per MPPT input where source circuit fusing is not included | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 2) Fuses (if needed) are rated to the series fuse rating of the PV module | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 3) No more than one noninverter-integrated DC combiner is utilized per inverter | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. For central inverter systems: No more than two inverters are utilized | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| C. The PV system is interconnected to a single-phase AC service panel of nominal 120/220 Vac with a bus bar rating of 225 A or less | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| D. The PV system is connected to the load side of the utility distribution equipment | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| E. A solar PV Standard Plan and supporting documentation is completed and attached and includes: | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 1) Barstow's ambient temperature of 8°F to 115°F | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 2) Conduit attachment details | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| 3) Irreversible crimp is provided in the main panel (if necessary) | <input type="checkbox"/> Y | <input type="checkbox"/> N |

STRUCTURAL REQUIREMENTS

- | | | |
|---|----------------------------|----------------------------|
| A. A completed <i>Structural Criteria for Residential Flush-Mounted Solar Arrays</i> form is attached. Please be sure to use Wind Exposure C and Wind Speed of 110 MPH. | <input type="checkbox"/> Y | <input type="checkbox"/> N |
|---|----------------------------|----------------------------|

FIRE REQUIREMENTS

- | | | |
|--|----------------------------|----------------------------|
| A. Clear access pathways are provided | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| B. Fire classification solar system is provided | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| C. All required markings and labels are provided. Please note that all labels and placards are made of hard plastic or metal, except for labels placed on conduit. | <input type="checkbox"/> Y | <input type="checkbox"/> N |
| D. A diagram of the roof layout of all panels, modules, roof mount locations, clear access pathways and approximate locations of electrical disconnection means and roof access points is completed and attached. Please note such diagram should also include the location of existing roof vent(s), heating/cooling unit(s) and any other appliance(s) or structure(s) located on rooftop. | <input type="checkbox"/> Y | <input type="checkbox"/> N |

APPLICANTS, PLEASE BE ADVISED:

1. These criteria are intended for expedited solar permitting process for one- and two-family dwellings (10kW or less).
2. If any items are marked NO, please revise the photovoltaic system design to fit within the Eligibility Checklist, otherwise permit application may go through standard permit process.



COMMUNITY DEVELOPMENT DEPARTMENT
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STRUCTURAL CRITERIA FOR RESIDENTIAL FLUSH-MOUNTED SOLAR ARRAYS*

Project Address: _____

Number of Kilowatts: _____ Number of Panels/Modules _____

1. ROOF CHECKS

- A. Visual Review/Contractor's Site Audit of Existing Conditions:
- 1) Is the roof a single 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

2. SOLAR ARRAY CHECKS

- 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 overhand any roof edges (ridges, hops, gable ends, eaves)? Y N
- B. Do the modules plus support components weigh no more than:
- 1) 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 screw per anchor (typically one): _____
 - d) Are 5/16" diameter lag screws with 2.5" embedment into the rafter use, OR does the anchor fastener meet the manufacturer's guidelines? Y N

3. SUMMARY

- 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

***This form can only be used for the expedited review for solar photovoltaic permitting of one- and two-family residential dwellings with a system size of 10kW or less.**



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STRUCTURAL CRITERIA FOR RESIDENTIAL FLUSH-MOUNTED SOLAR ARRAYS

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 is 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.
 - The dwelling is located on the top half of a tall hill, provided average slope 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).
 - 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. Please contact the Building Department at (760) 255-5161 if you would like a copy of the Structural Technical Appendix.



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STRUCTURAL CRITERIA FOR RESIDENTIAL FLUSH-MOUNTED SOLAR ARRAYS

Table 2. Roof Rafter Maximum Horizontal Span (feet-inches)

Assumed Vintage	Nominal Size	Actual Size	Non-Tile Roof ²			Tile Roof ³		
			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 and 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 20 psf
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.

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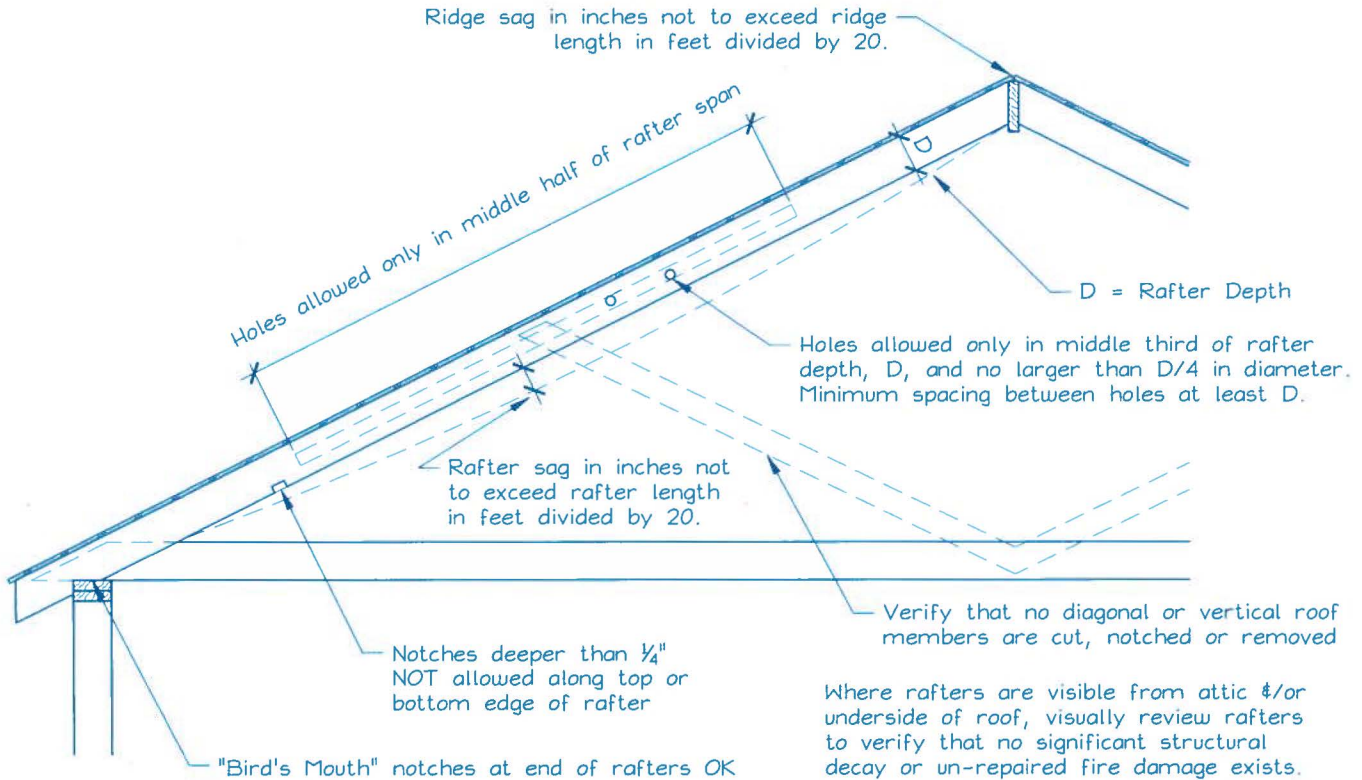


Figure 1. Roof Visual Structural Review (Contractor's Site Audit) of Existing Conditions.

The site auditor should verify the following:

1. No visually apparent disallowed rafter holes, notches and truss modifications as shown above.
2. No visually apparent structural decay or un-repaired fire damage.
3. 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.

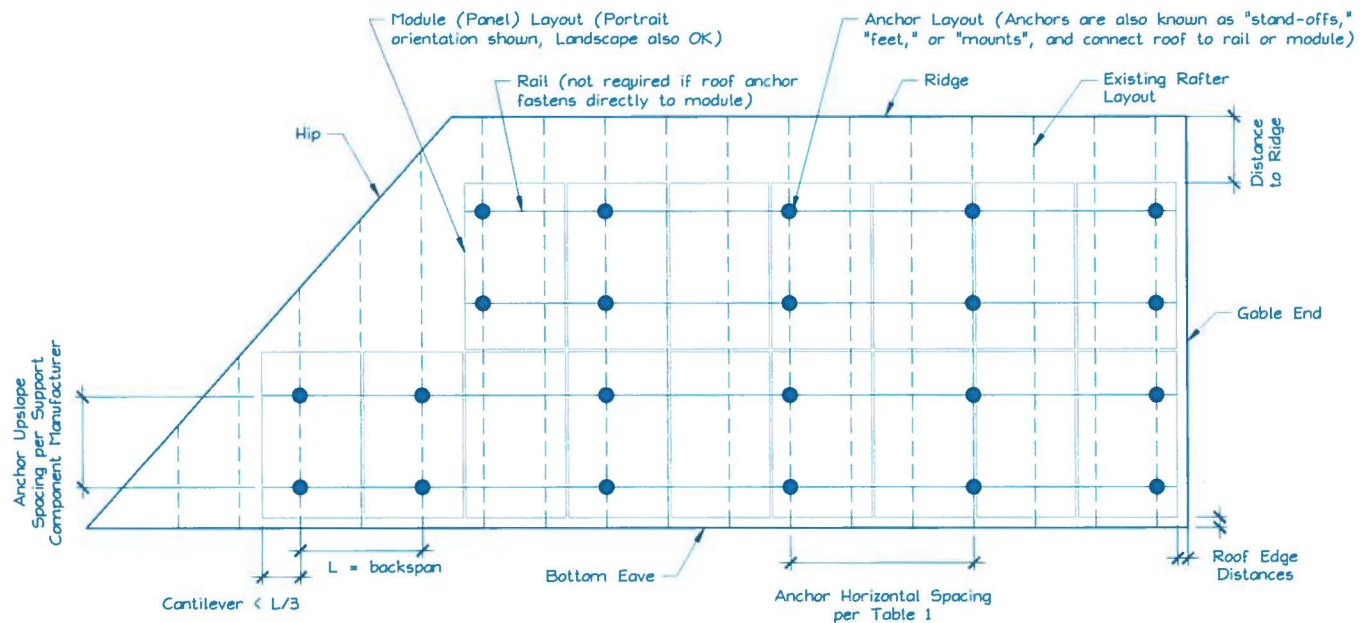


Figure 2. Sample Solar Panel Array and Anchor Layout Diagram (Roof Plan).

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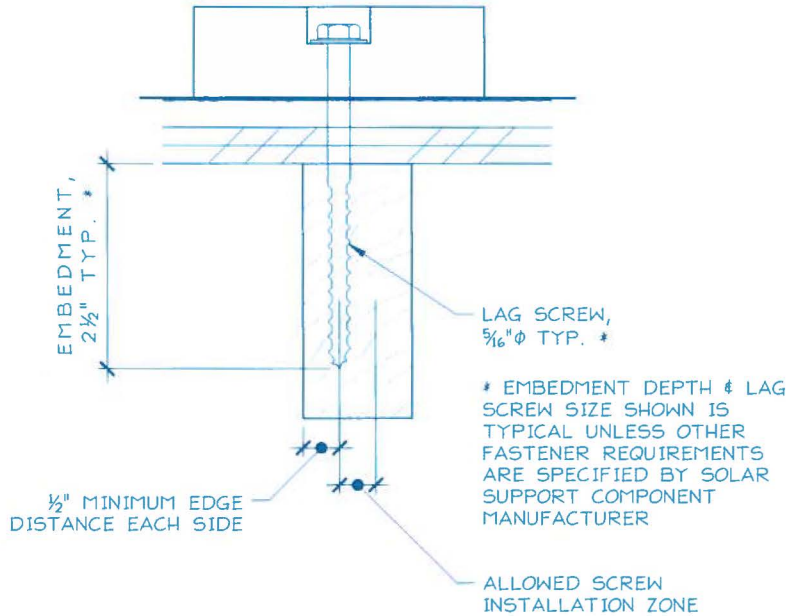


Figure 3. Typical Anchor with Lag Screw Attachment.

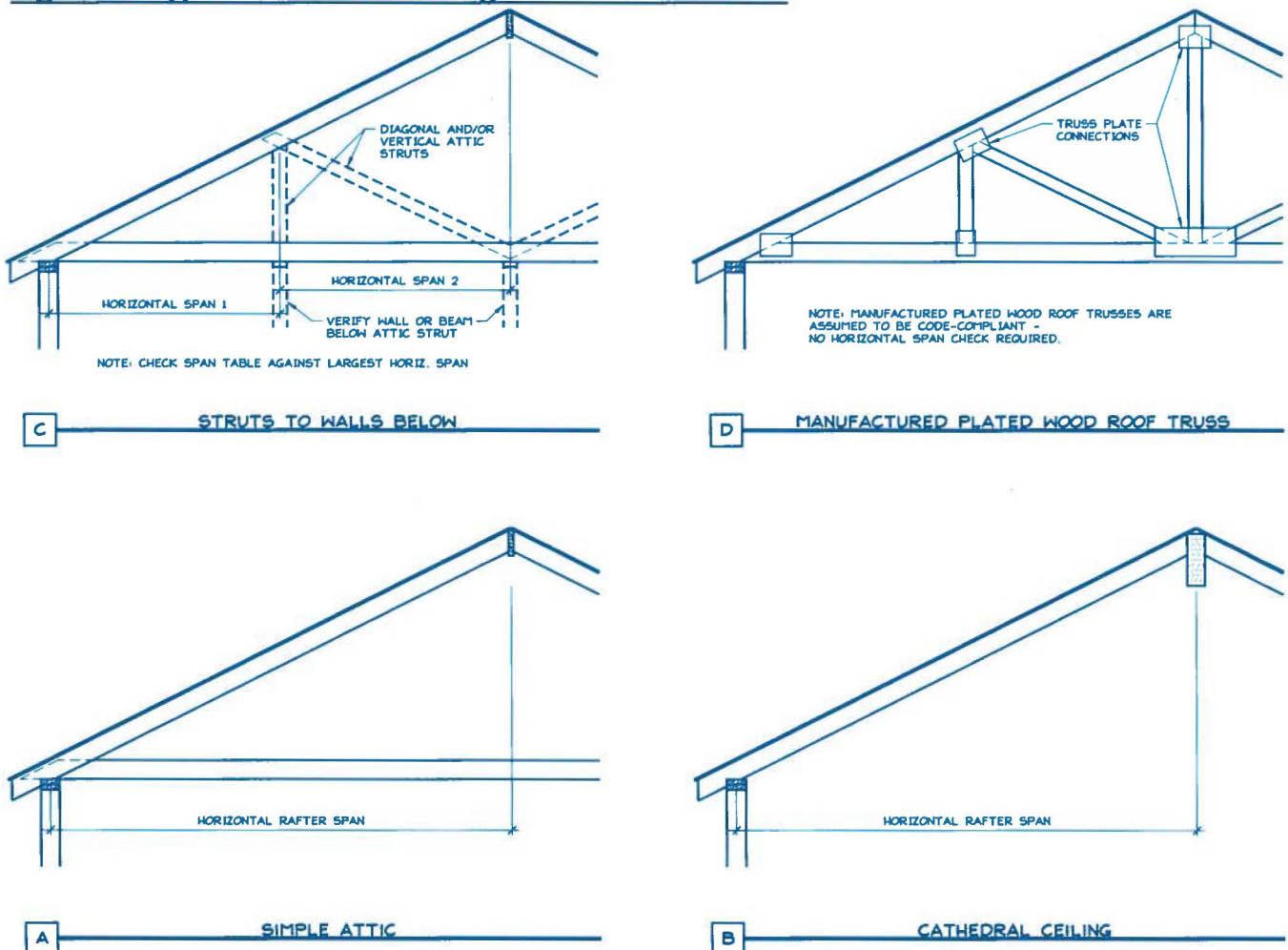


Figure 4. Definition of Rafter Horizontal Span.