COMMUNITY DEVELOPMENT DEPARTMENT
Building & Safety Inspection Division
221 West Pine St./PO Box 3006, Lodi, CA 95241-1910
(209) 333-6714

Photovoltaic Permit Procedure

Policy and Procedure-G [July 2013]

1. Application, 3 sets of plans and 1 set of manufacturer's spec sheets/owner's manual to be submitted to Building Inspection Division by Contractor.

2. Building Inspection Division will route a Staff Comment Sheet to Electric Utility (Engineering), which will include 1 plot plan and 1 set of PV system plans.

3. . Building Inspection Division will provide the applicant with the Electrical Interconnection Agreement (Co-metering or Net-Metering, which ever is applicable to customer's project) with a self-addressed envelope to Electric Utility Department*. The Contractor/Owner is responsible for returning the signed agreement to EUD.

4. Electric Utility to notify Building Inspection Division of approval by return of Staff Comment Sheet, with a copy of ECS 942 0240 (Co-generation Metering Standard) attached. Staff Comment Sheet shall not be approved until agreements have been signed and returned to EUD.

5. Permit issued to Contractor.

6. Contractor to request the following inspections:
   - Pre-inspection
     To verify adequacy of roof structure and electrical service (according to approved plans and Project Engineer's specifications/calculations).
   - Rough wiring and framing
   - Final Approvals by Electric Utility (Contractor to call E.U. main office 333-6762 and indicate P.V. inspection). Electric Utility to lock-out photovoltaic system connect/disconnect switch; the lock will remain in place until the Electrical Interconnection Agreement is signed by Electric Utility Director, and photovoltaic system is confirmed operational. EUD Planner will post their inspection results on Permits Plus.

   - Final Inspection by Building Inspection Division 333-6716.

7. Building Inspection Division to e-mail "Service Order meter set P.V. system" to Finance Department once permit has been finaled. Upon notification from EUD that the Interconnection Agreement has been signed by the EUD Director, Finance Department will create a service order for Electric Utility Department to set PV meter that registers the output of the system. Finance Department to e-mail PDF of the service order to the EUD Construction /Maintenance Supervisor, Distribution Planning Supervisor and the Metering Electrician. PV meter will be set and the lock in the system connect/disconnect will be removed. A copy of the signed interconnection agreement will be returned to the customer via mail.

8. Finance Department will update the CIS system with the meter information. Customer will not be billed as a net meter until the service order is returned to Finance. The existing meter will be replaced. For grid tie metering, one additional meter will be installed.

NOTE-EUD will remove lock; however, the breaker will have to be closed by the customer or their representative.

*Once customer-signed Electrical Interconnection Agreement is received in the Electric Utility offices, it will be held until customer's photovoltaic system receives final building inspection and system is confirmed operational.

PERMIT FEES & METERING FEES

RESIDENTIAL

	EUD Metering Fee	$406.00
	P.C. 1 Hour	$137.00
	Inspec. Pre	$69.00
	Rough	$69.00
	Final	$69.00
	Sub-Total	$750.00
	Final App. Admin. Re-insp.	$69.00
	Sub-Total	$819.00
Electrical permit –	Sub-panel (inverter) ea.	$15.00
	Service (If 100 amp)	$15.00 ($25.00 if 200 amp)
	Permit	$69.00
	BSASRF Fee	$1.00
	Total	**$919.00**

COMMERCIAL

	EUD Metering Fee	$417.00
	P.C. 2 Hour	$274.00
	Inspec. Pre	$69.00
	Rough (2)	$137.00
	Final	$69.00
	Sub-Total	$966.00
	Final App. Admin. Re-insp.	$69.00
	Sub-Total	$1035.00
Electrical permit –	Sub-panel (inverter) ea.	$15.00
	Service (If 100 amp)	$15.00 ($25.00 if 200 amp)
	Permit	$69.00
	BSASRF Fee	$1.00
	Total	**$1135.00**

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(209) 333-6714

CONSTRUCTION PERMIT APPLICATION

#1 IDENTIFY YOUR BUILDING PROJECT

Application Number:_____ Intake Person(office use only)_____

APN:_____ **Job Site Address**:_____ Suite or Space # _____

This permit is to be issued in the name of the (__) Licensed Contractor or (__) the Property Owner as the permit holder of record who will be responsible and liable for the construction.

Property Owner Information: Name _____ Tel No_____

Mailing Address_____

Contact Name: _____**Ph#** _____ **E-mail:**_____

Project Type: _____Commercial _____Residential **Permit Type(s):** _____BLDG _____MECH _____PLUMB _____ELEC

Scope of Work: _____

_____

_____

_____ If stucco, how many SF?_____

Contract Value: $_____ Const. Type: _____ Occupancy Type: _____

Is Bldg. Sprinklered? Yes No Is Bldg. Conditioned? Yes No Existing/Proposed Well or Septic? Yes No

Existing Use:_____ Proposed Use:_____# of Stories:_____ # of Units:_____

Comm. Sq. Ftg.: Office:_____ Retail:_____ Warehouse:_____ Other:_____

Res.Sq. Ftg.: Total Sq. Ftg._____ Dwelling:_____ Gar:_____ # of cars _____ Patio/Porch:_____ Deck:_____

#2 IDENTIFY WHO WILL PERFORM THE WORK (Complete *either* 2a *or* 2b)

2a – CALIFORNIA LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Contractor Name and Address: _____

License Number and Class: _____ **Contractor Signature** _____

2b – OWNER-BUILDER'S DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors' State License Law for the reason(s) indicated below by the checkmark(s) I have placed next to the applicable item(s) (Section 7031.5, Business and Professions Code: Any city or county that requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for the permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors' State License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he or she is exempt from licensure and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

(__) I, as owner of the property, or my employees with wages as their sole compensation, will do (_) all of *or* (_) portions of the work, and the structure is not intended or offered for sale (Section 7044, Business and Professions Code: The Contractors' State License Law does not apply to an owner of property who, through employees' or personal effort, builds or improves the property, provided that the improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the Owner-Builder will have the burden of proving that it was not built or improved for the purpose of sale.).

(_) **I, as owner of the property, am exclusively contracting with licensed Contractors to construct the project** (Section 7044, Business and Professions Code: The Contractors' State License Law does not apply to an owner of property who builds or improves thereon, and who contracts for the projects with a licensed Contractor pursuant to the Contractors' State License Law.).

(__) I am exempt from licensure under the Contractors' State License Law for the following reason:

_____

By my signature below I acknowledge that, except for my personal residence in which I must have resided for at least one year prior to completion of the improvements covered by this permit, I cannot legally sell a structure that I have built as an owner-builder if it has not been constructed in its entirety by licensed contractors. I understand that a copy of the applicable law, Section 7044 of the Business and Professions Code, is available upon request when this application is submitted or at the following Web site: http://www.leginfo.ca.gov/calaw.html.

Property Owner or Authorized Agent signature_____ Date _____

#3 IDENTIFY WORKERS' COMPENSTATION COVERAGE AND LENDING AGENCY

WARNING: **FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.**

WORKERS' COMPENSATION DECLARATION
I hereby affirm under penalty of perjury one of the following declarations:

(__) I have and will maintain a certificate of consent to self-insure for workers' compensation, issued by the Director of Industrial Relations as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. Policy No. _____

(__) I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:
Carrier_____ Policy No_____ Expiration Date_____

Name of Agent _____ Tel No _____

(___) I certify that, in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California, and agree that, if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

DECLARATION REGARDING CONSTRUCTION LENDING AGENCY
I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Section 3097, Civil Code).
Lender's Name and Address_____
_____

#4 DECLARATION BY CONSTRUCTION PERMIT APPLICANT

By my signature below, I certify to each of the following:

I am (__) a California licensed contractor or (__) the property owner* or (__) authorized to act on the property owner's behalf.**

I have read this construction permit application and the information I have provided is correct.
I agree to comply with all applicable city and county ordinances and state laws relating to building construction.
I authorize representatives of this city or county to enter the above-identified property for inspection purposes.

**requires separate verification form*

California Licensed Contractor, Property Owner* or Authorized Agent**: ***requires separate authorization form*

Signature _____ Date _____

Building Department Check List for Residential Photovoltaic Systems

1. The Cover Sheet shall include a bolded note stating that the **2013 California Residential Code, California Electrical Code, California Fire Code and 2013 California Energy Code**, Occupancy Group Division, Building Use, Parcel No. and Construction Type as amended by State of California and local jurisdiction are applicable to this project.

2. Plans shall specify existing roof framing (i.e. 2 x 4 engineered trusses @ 24"oc, 2 x 6 DF#2 rafters @ 16"oc w/14' 4" span) and roofing material. Conventionally framed roofs will have the rafter spans verified against 2013 CRC, Table R802.5.1 (1). Projects with existing over-spanned rafters will require a separate building permit for the structural reinforcement of the existing roof structure to support the additional loads from the photovoltaic system. Plans, detail and structural design calculations shall be prepared by an Architect or Professional Engineer, licensed in the State of California.

3. Site Plan shall show location of the Electric Service Meter, Lockable AC Disconnect, Inverters, and any other electrical equipment required for the photovoltaic installation (sub-panels, additional meter sockets, DC lockouts, etc.).

4. The Lockable AC Disconnect shall be located within 10' and "in-sight" of the Electric Service Meter.

5. Roof Plan shall show photovoltaic panel layout and shall clearly identify all hips, valleys and ridge lines. Panels shall be located no higher than 3' from the ridge to allow for Fire Department ventilation opportunities in case of fire.

6. Roof Plan shall show required access pathways, to include:
   a) Minimum 3' wide pathway from ridge to photovoltaic panels.
   b) Minimum 3' wide pathway, from eaves to ridge, at both sides of the photovoltaic panel layout.
   c) At hips and valleys the photovoltaic panels shall not be located closer than 1.5' to a hip or valley, if panels are to be placed at both sides of the hip or valley. If the panels are to be located on only one side of a hip or valley that is of equal length then the panels may be placed directly adjacent to the hip or valley.
   d) Pathway and ventilation requirements do not apply to patio covers, carports and trellises.

   If the Electric Utility Department requires the number of photovoltaic panel to be decreased, revised roof plan showing panel locations and pathways shall be re-submitted to the Building Department for review and approval.

7. The plans shall include an electrical single line drawing to specify wire sizes and conduit sizes where applicable. The amount of wire in conduits shall not exceed the specifications of 2013 CEC, Chapter 9, Table 1 or the number of conductors in conduit shall not exceed the number specified in the tables in 2013 CEC, Annex C. Annex C was adopted by the City of Lodi.

8. Plans shall show photovoltaic system wires are adequately sized and overcurrent protection devices (circuit breakers, fuses) do not exceed the maximum overcurrent protection for the wire size (i.e. 20amp breaker/#12 Cu wire, 30amp breaker/#10 Cu wire, 40amp breaker/#8 Cu wire, etc.).

9. The photovoltaic system breaker shall be a maximum of 20% of the service panel rating or plans shall include calculations to specify and show the sum of the ampere ratings of over-current devices in circuits supplying power to a busbar or conductor shall not exceed 120% of the rating of the busbar or conductor. 2013 CEC, Article 705.12 (D) (2)

10. Supply side connection of the photovoltaic system shall be approved by the Electric Utility Department. The sum of the ratings of all overcurrent devices connected to the power production source shall not exceed the rating of the service (conductors). The photovoltaic service disconnect shall have minimum rating of 60amps. Photovoltaic service wires shall be sized according to the disconnect means (60amp breaker/#6 Cu). 2013 CEC, Articles 705.12, 230.79 (D)

11. Plans shall specify and show wiring inside of the building is to be protected by metal conduit. 2013 CEC, Article 690.31 (E)

12. Plans to provide complete and adequate framing details and connection requirements for the proposed photovoltaic system.

13. Applicants shall provide manufacturer's specification sheets for all items/parts used in the installation.

14. All photovoltaic disconnects are to be permanently labeled. Lettering to be white, minimum 3/8" high, all capital letters, Arial or similar font, on red background. Material required to be reflective, weather resistant and suitable for the environment.

15. A "CAUTION: DUAL POWER SUPPLY" sign shall be supplied at the Electric Service panel. Lettering to be white, minimum 3/8" high, all capital letters, Arial or similar font, on red background. Material required to be reflective, weather resistant and suitable for the environment.

16. All interior and exterior dc conduit, raceways, enclosures, and cable assemblies shall be marked with "CAUTION SOLAR CIRCUIT" signage, at every 10' of length, at turns, above and below penetrations, and at all dc combiner and junction boxes. Lettering to be white, minimum 3/8" high, all capital letters, Arial or similar font, on red background. Material required to be reflective, weather resistant and suitable for the environment.

CITY OF LODI

FIRE DEPARTMENT

FIRE PREVENTION STANDARD

PHOTOVOLTAIC INSTALLATIONS

Number: H-03	Effective Date: 03/19/08	Revised Date:
Code References:		
Note: This standard is a summary of Fire Department clarifications of City and State guidelines. Information contained herein applies to typical circumstances and may not address all situations.		

Scope:

This standard was developed with safety as the principal objective. The intent of this standard is to provide the solar photovoltaic industry with information that will allow it to design, build, and install solar photovoltaic systems in a manner that meets the objectives of both the solar photovoltaic industry and the Lodi Fire Department.

If a solar photovoltaic system design does not meet the provisions in this standard the solar contractor should contact the fire department to determine if alternate means or methods would allow for a safe installation that is acceptable.

General Information about Solar Photovoltaic Systems

Solar photovoltaic systems generate electricity from the sun. As of September 2007, there are roughly 30,000 solar photovoltaic systems installed on homes, commercial buildings and free standing structures in California. Most systems are connected to the electric grid and provide power to the site. The majority of these systems do not have any battery backup equipment – instead, excess power is sent to the electric utility system.

Solar photovoltaic (PV) systems are installed with an AC disconnect at the service panel. Conduit carrying DC power connects the panels to the inverter. The inverter connects the PV system to the utility service panel. AC disconnects are not required in all jurisdictions because the main breaker provides this level of disconnect.

A DC disconnect is installed on the site side of the inverter. Typical systems seen today have an inverter located near the utility service panel. Some inverters (micro inverters, AC modules) are located at the PV panel (the solar industry refers to PV panels as “modules”). If the inverter is located at the PV panel, the conduit from the panels to the utility power supply is AC. The DC disconnect at the service panel cuts power to the inverter, which is then unable to export power to the utility service panel and prevents any solar electricity from harming service or maintenance workers on the utility side of the panel. During the day, there is power in the conduit between the PV panels and the DC disconnect.

The systems will produce up to 8 amps and up to 600 volts of electricity. This varies by installation. Multiple strings of series connected panels are connected together in a combiner box. The power output is highest on a bright day with low ambient temperatures and drops as the panels heat up (such as on a very hot day). There is no power output in the dark and there is no stored energy in the panels themselves. Service lights used by fire crews do not provide enough light to develop harmful power levels.

Panels are mounted on buildings or on ground supported frames. Roof mounted modules or panels can be one of several types:

1. Directly on a building's roof
2. Integral to the roof system of a building
3. On a rack with a space above the roof surface
4. On a free-standing structure but not on the habitable structure (such as a trellis or other free-standing support structure).

Specifically:

- Panels attached to a mounting system may be attached to the roof or rest on the roof surface.
- Panels integrated to the roof system. These types of panels are commonly referred to as Building Integrated Photovoltaic (BIPV) and are of two types:
  - Physically integrated roofing products. These resemble roof shingles or tiles and are installed along with standard roof shingles or tiles so that they blend into overall appearance of the roof. Physically integrated BIPV panels act as part of a defined roofing system.
  - Aesthetically integrated panels also resemble roof shingles or tiles and are installed along with standard roof shingles or tiles to blend into the overall appearance of the roof. Aesthetically integrated panels do not act as part of a defined roofing system.

Although it is not advisable to step or walk on any solar system due to slip and/or trip hazards, the systems are be able to support a firefighter's weight. For residential systems using panels mounted integrally with the roof of the building the panels are tested to and meet the requirements of ICC-ES AC365, Section 3.5 (Penetration Test).

Other PV products, such as those integrated with a curtain wall or as windows are not currently addressed in this standard.

Panels are located in a manner to provide the best access to sunlight. This means they are typically mounted on the south or west side facing roof façade. In residential applications, the typical roof area used is about 400 square feet. Larger size systems correspond to a higher site electricity demand.

Other types of solar energy systems that might be seen at a site do not generate electricity. These can be broken down into three major types - solar water heating, solar pool heating, and solar space conditioning. In these systems, panels and piping carry water or glycol. Glycol is used in areas where extended periods of freezing temperature levels could cause ice to damage the solar panels and/or distribution pipes.

1.0 MARKING

Marking is needed to provide emergency responders with appropriate warning and guidance with respect to isolating the solar electric system. This can facilitate identifying energized electrical lines that connect the solar panels to the inverter, as these should not be cut when venting for smoke removal.

Materials used for marking shall be weather resistant. Markings shall be installed and maintained in such a way as to remain highly visible to comply with the intent of this standard. Use UL 969 as standard to weather rating (UL listing of markings is not required).

1.1 Main Service Disconnect

1.1 Main Service Disconnect

The marking shall be placed within 10' of the main service disconnect in a location clearly visible from the location where the lever is operated.

If the main service disconnect is not operable with the service panel closed, then additional marking should be placed within the main service disconnect as necessary to positively identify the disconnect switch.

1.1.1 Marking Content and Format

· MARKING CONTENT: CAUTION: DUAL POWER SUPPLY
· RED BACKGROUND,
· WHITE LETTERING,
· MINIMUM 3/8" LETTER HEIGHT,
· ALL CAPITAL LETTERS,
· ARIAL OR SIMILAR FONT, NON-BOLD,
REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (durable adhesive materials meet this requirement)

CAUTION:
DUAL POWER SUPPLY

1.2 Shut off Marking for dc conduit, raceways, enclosures, cable assemblies, and junction boxes

Marking is required on all interior and exterior dc conduit, raceways, enclosures, cable assemblies, and junction boxes to alert the fire service to avoid cutting them. Marking shall be placed on all interior and exterior dc conduit, raceways, enclosures, and cable assemblies, every 10 feet, at turns and above and/or below penetrations and all dc combiner and junction boxes.

1.2.1 Marking Content and Format

- MARKING CONTENT: CAUTION SOLAR CIRCUIT
- RED BACKGROUND,
- WHITE LETTERING,
- MINIMUM 3/8" LETTER HEIGHT,
- ALL CAPITAL LETTERS,
- ARIAL OR SIMILAR FONT, NON-BOLD,
- REFLECTIVE, WEATHER RESISTANT MATERIAL (durable adhesive materials meet this requirement)

CAUTION SOLAR CIRCUIT

1.3 Inverters
The inverter is a device used to convert DC electricity from the solar system to AC electricity for use in the building's electrical system or the grid.

No markings are required for the inverter.

2.0 ACCESS, PATHWAYS AND SMOKE VENTILATION

Access and spacing requirements shall be observed in order to:

- Ensure access to the roof
- Provide pathways to specific areas of the roof
- Provide for smoke ventilation opportunities area

- Provide emergency egress from the roof

Local jurisdictions may create exceptions to this requirement where access, pathway or ventilation requirements are reduced due to:

- Proximity and type of adjacent exposures
- Alternative access opportunities (as from adjoining roofs)
- Ground level access to the roof area in question
- Adequate ventilation opportunities beneath solar array (as with significantly elevated or widely-spaced arrays)
- Adequate ventilation opportunities afforded by panel set back from other rooftop equipment (shading or structural constraints may leave significant areas open for ventilation near HVAC equipment, for example.)
- Automatic ventilation device.
- New technology, methods, or other innovations that ensure adequate fire department access, pathways and ventilation opportunities.

Designation of ridge, hip, and valley does not apply to roofs with 2-in-12 or less pitch. All roof dimensions measured to centerlines.

Roof access points shall be defined as an area that does not place ladders over openings (i.e., windows or doors) and are located at strong points of building construction and in locations where it does not conflict with overhead obstructions such as tree limbs, wires, or signs.

2.1 Residential Systems—Single and Two-Unit Residential Dwellings

Plan review is required if a system is to be installed that will occupy more than 50% of the roof area of a residential building.

Examples of these requirements appear at the end of these guidelines.

2.1.1 Access

a. Residential Buildings with hip roof layouts. Panels shall be located in a manner that provides one (1) three-foot (3') wide clear access pathway from the eave to the ridge on each roof slope where panels are located. The access pathway shall be located at a structurally strong location on the building (such as a bearing wall.)

b. Residential Buildings with a single ridge. Panels shall be located in a manner that provides two (2) three-foot (3') wide access pathways from the eave to the ridge on each roof slope where panels are located.

c. Hips and Valleys: Panels shall be located no closer than one and one half (1.5) feet to a hip or a valley if panels are to be placed on both sides of a hip or valley. If the panels are to be located on only one side of a hip or valley that is of equal length then the panels may be placed directly adjacent to the hip or valley.

2.1.2 Ventilation

Panels shall be located no higher than three feet (3) below the ridge.

2.2 Commercial Buildings and Residential Housing comprised of three (3) or more units

Exception: If a local fire department determines that the roof configuration is similar to residential (such as in the case of townhouses, condominiums, or single family attached buildings), the local fire department may make a determination to apply the residential access and ventilation requirements.

Examples of these requirements appear at the end of these guidelines.

2.2.1 Access

There shall be a minimum six (6) foot wide clear perimeter around the edges of the roof.

Exception: If either axis of the building is 250 feet or less, there shall be a minimum four feet (4') wide clear perimeter around the edges of the roof.

2.2.2 Pathways

Pathways shall be established in the design of the solar installation. Pathways shall meet the following requirements:

a. Shall be over structural members
b. Center line axis pathways shall be provided in both axis of the roof. Center line axis pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof
c. Shall be straight line not less than 4 feet clear to skylights and/or ventilation hatches
d. Shall be straight line not less than 4 feet clear to roof standpipes
e. Shall provide not less than 4 feet clear around roof access hatch with at least one not less than 4 feet clear pathway to parapet or roof edge

2.2.3 Ventilation

a. Arrays shall be no greater than 150 by 150 feet in distance in either axis
b. Ventilation options between array sections shall be either:
    1. A pathway 8 feet or greater in width
    2. 4 feet or greater in width pathway and bordering on existing roof skylights or ventilation hatches
    3. 4 feet or greater in width pathway and bordering 4' x 8' "venting cutouts" every 20 feet on alternating sides of the pathway

3.0 LOCATION OF DC CONDUCTORS

Conduit, wiring systems, and raceways for photovoltaic circuits should be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities.

Conduit runs between sub arrays and to DC combiner boxes shall use design guidelines that minimize total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes are to be located such that conduit runs are minimized in the pathways between arrays.

To limit the hazard of cutting live conduit in venting operations, DC wiring shall be run in metallic conduit or raceways when located within enclosed spaces in a building and shall be run, to the maximum extent possible, along the bottom of load-bearing members.

4.0 NON-HABITABLE BUILDINGS

These guidelines do not apply to non-habitable structures. Examples of non-habitable structures include, but are not limited to, parking shade structures, solar trellises, etc.

5.0 GROUND MOUNTED PHOTOVOLTIAC ARRAYS

Setback requirements do not apply to ground-mounted, free standing photovoltaic arrays. A clear brush area of 10' is required for ground mounted photovoltaic arrays.

6.0 ALTERNATIVE MEANS OF COMPLIANCE

Growing demand for solar photovoltaic products is leading to new products, designs, technologies, and installation methods. As new products and methods become available, local fire departments may encounter solar photovoltaic systems that will require an alternative means of compliance. Solar contractors should contact their local fire department to determine if alternate means or methods would allow for a safe installation that is acceptable to the fire department.

Authorities Having Jurisdiction Alternative Means of Compliance based on their authority HCD regulations 111.2.4 and 108.7. For example, if new products, designs, technologies or methods become available that provides sufficient alternative protection and access, pathways and ventilation opportunities for fire crews.

Diagram 1: Cross Gable Roof

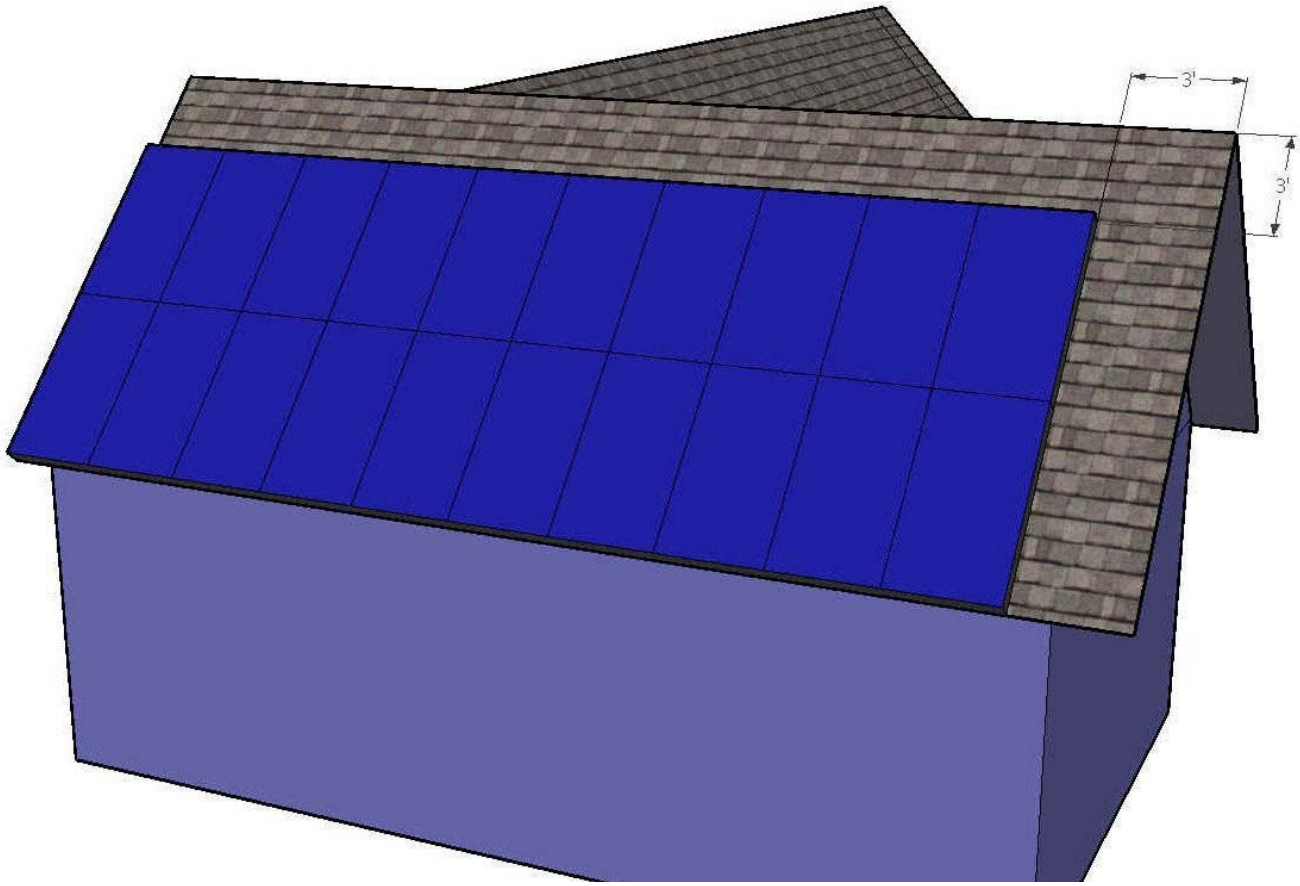


Diagram 2: Cross Gable with Valley

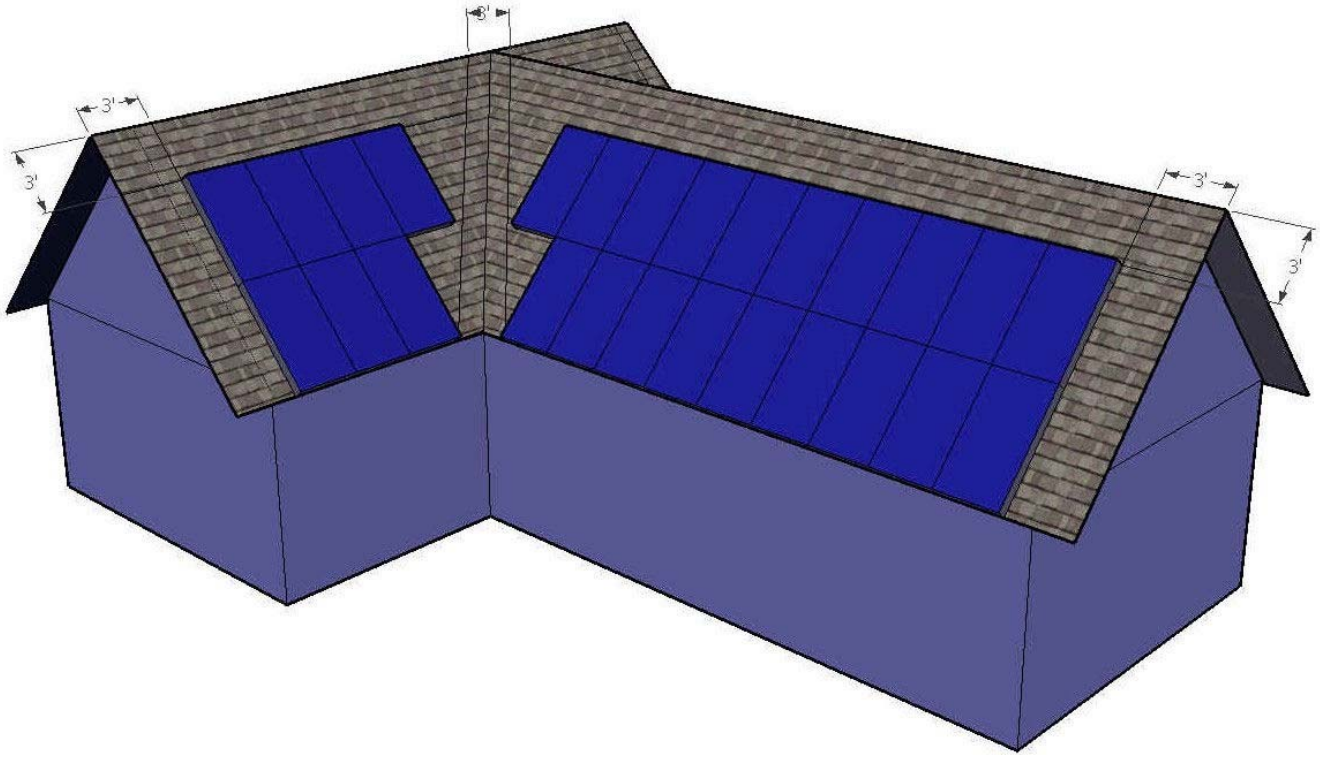


Diagram 3: Full Gable

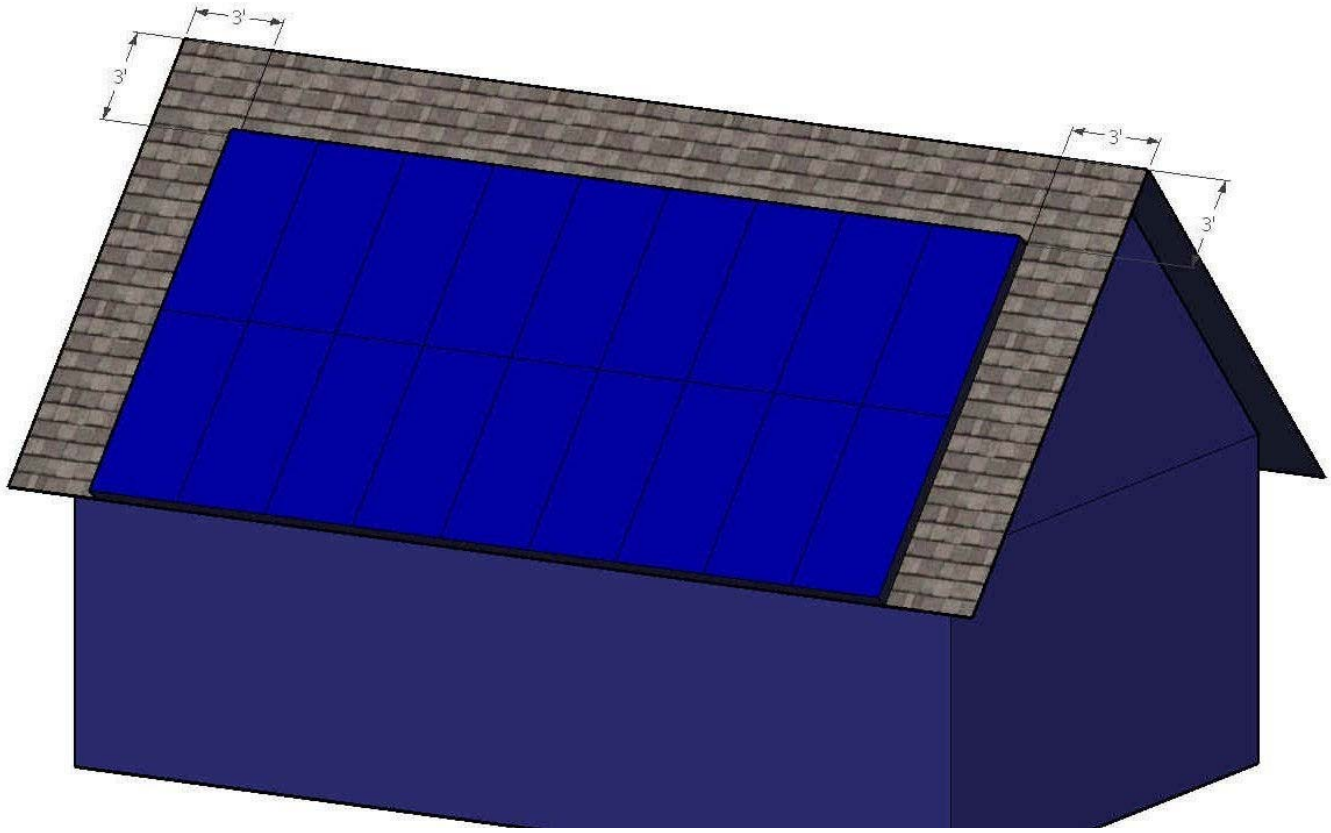
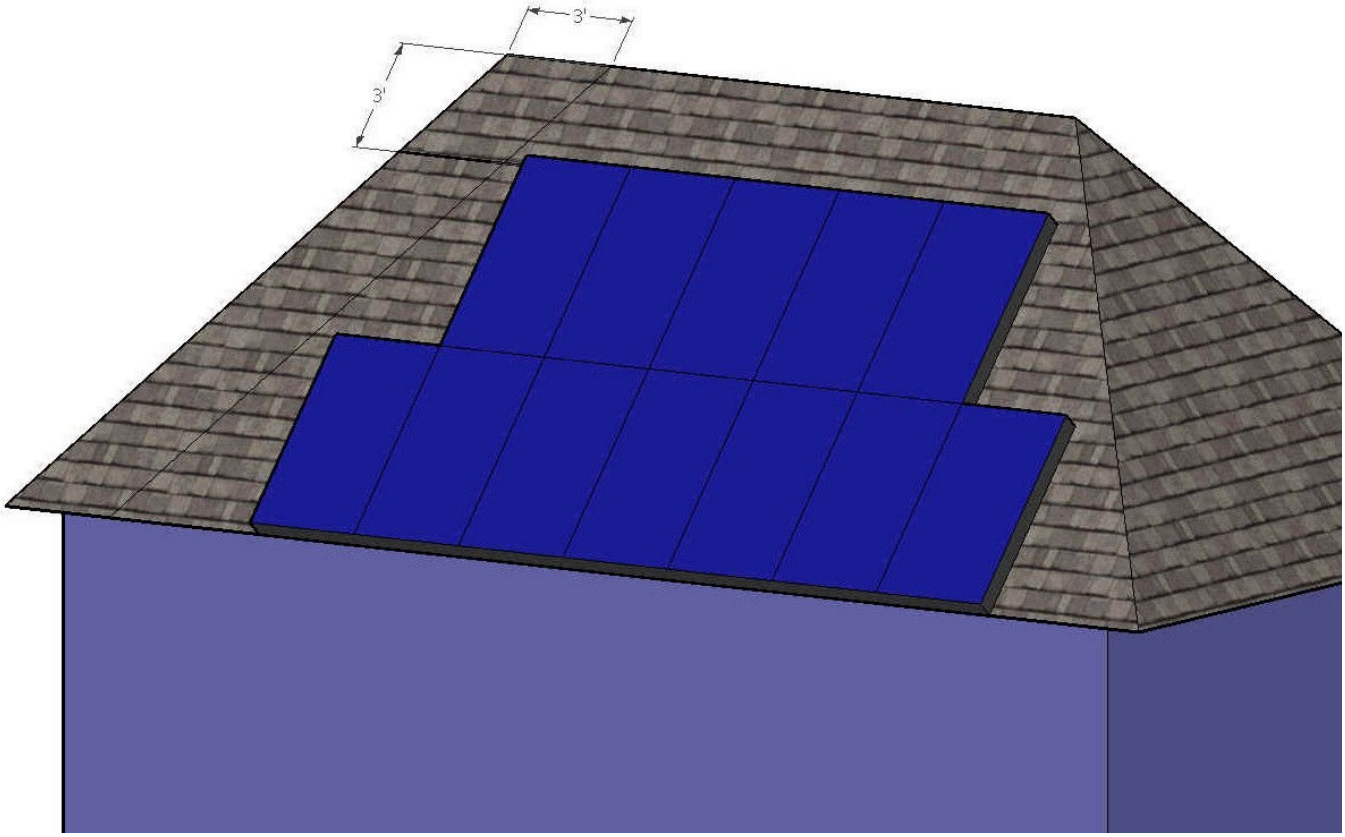


Diagram 4: Full Hip Roof



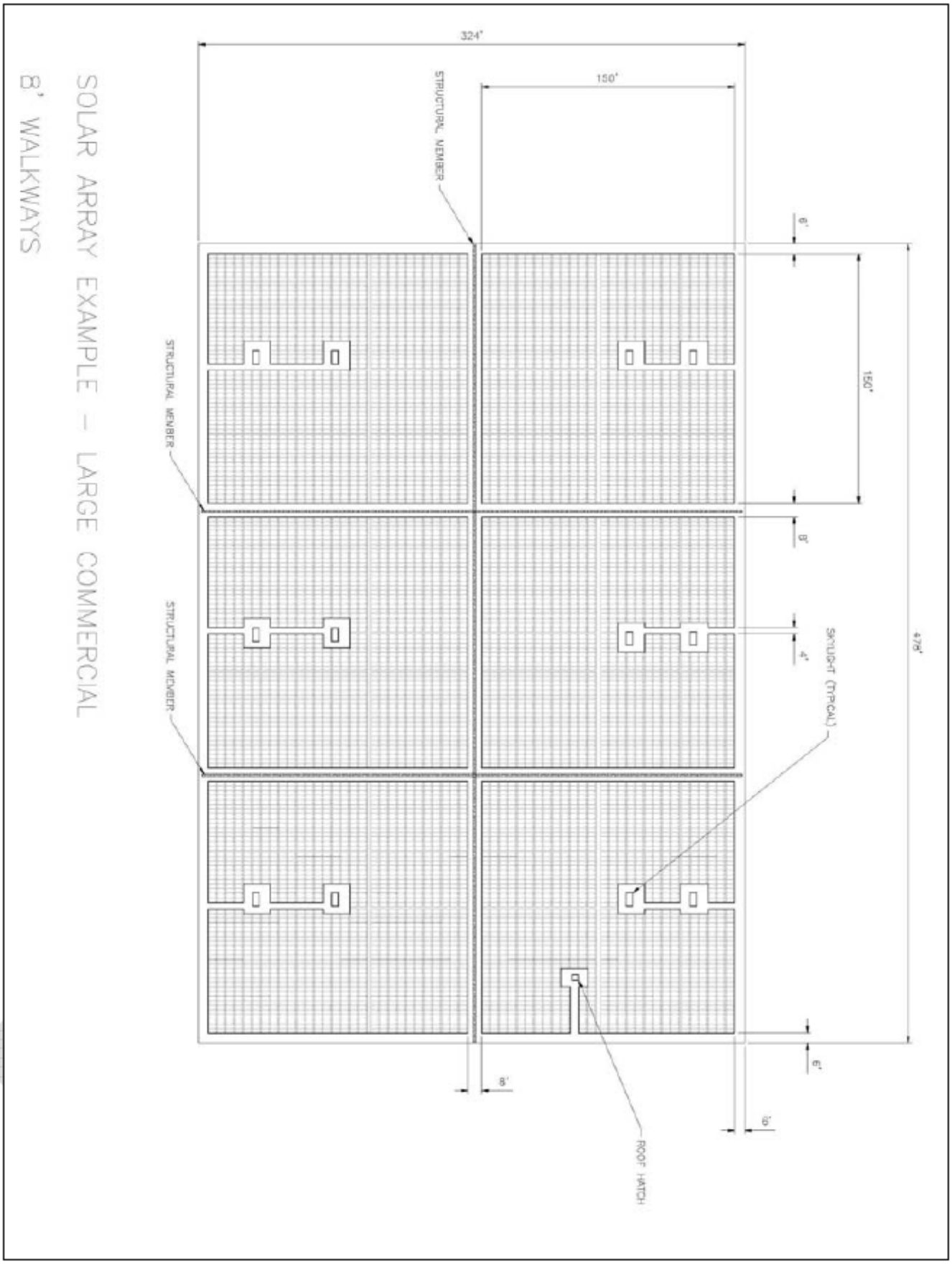


Diagram 5 – Large Commercial w/ 8' Walkways

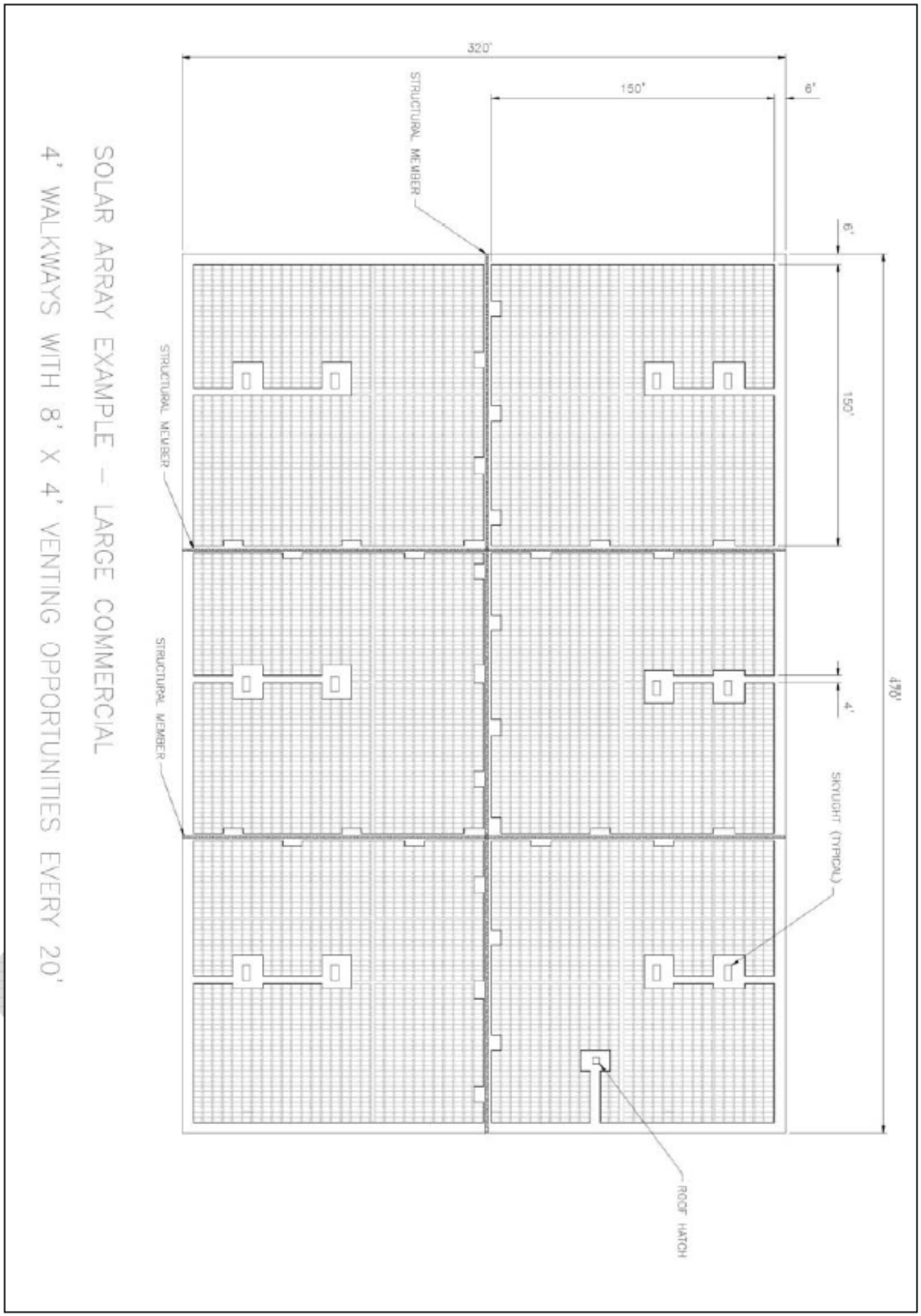


Diagram 6 – Large Commercial w/ 4' Walkways and 8' x 4' Venting Opportunities every 20'

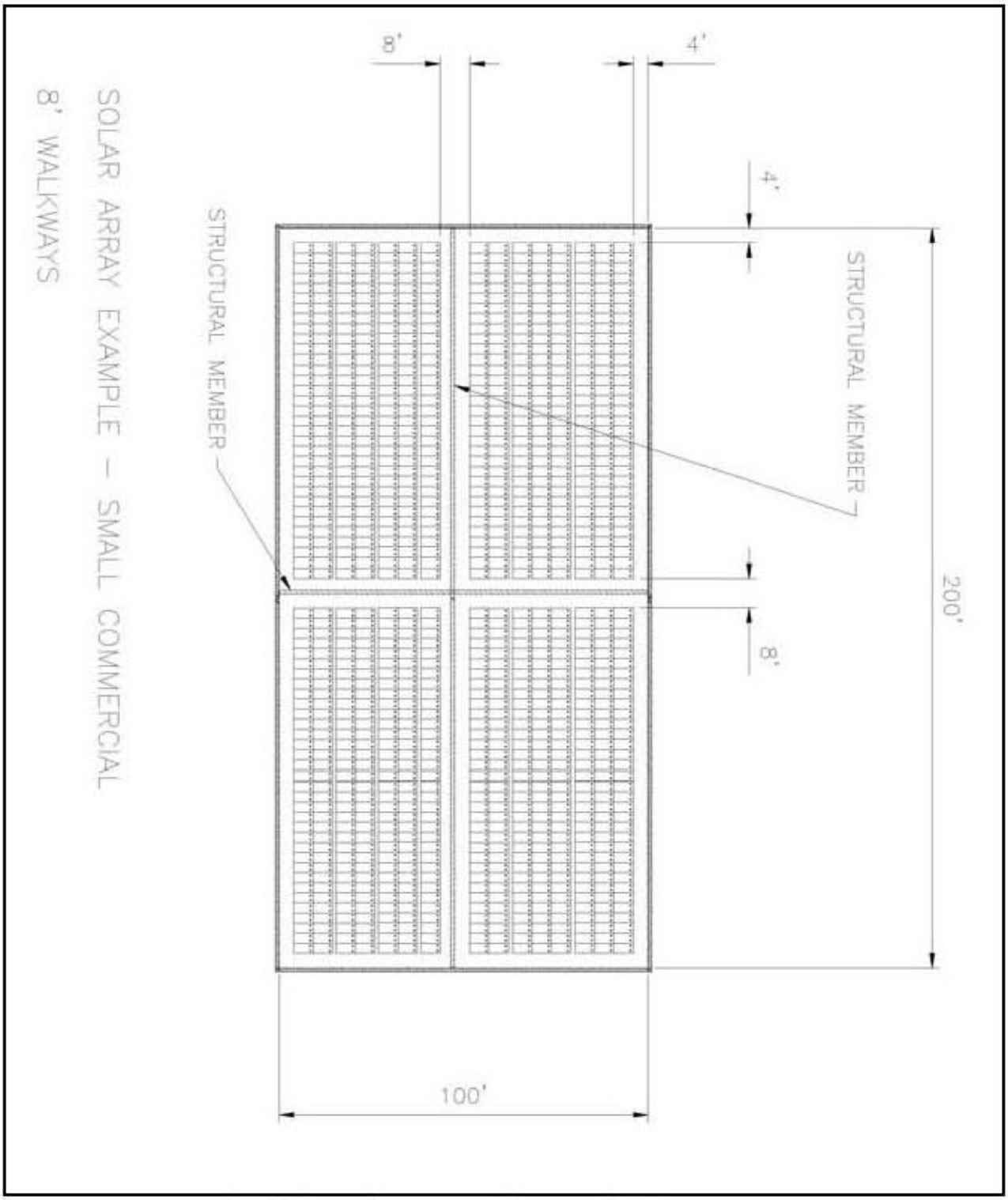


Diagram 7 – Small Commercial

CERTIFIED COMPONENTS:

A nationally recognized testing laboratory must certify all the components in a residential or commercial cogeneration system. These certifications are to include but are not limited to the following:

1. Photovoltaic modules shall meet the requirements of the Underwriters Laboratory (UL) Standard 1703.

2. Inverters shall meet the requirements of UL 1741.

3. Overall system design and individual component specifications shall be in accordance with California Electric Code Book (CEC) Article 690.

NET ENERGY METERING:

Net Energy Metering is available for cogeneration systems up to 10 kW in size only. Net Energy Metering will be provided by the City in accordance with the established Rules and Regulations Manual. After the customer has paid the appropriate fee, the City of Lodi will set a Net Energy Meter rated for the voltage supplied and calibrated to read power flow in both directions. Billing will be in accordance with the established City of Lodi Electric Rate Schedule.

GRID TIE METERING:

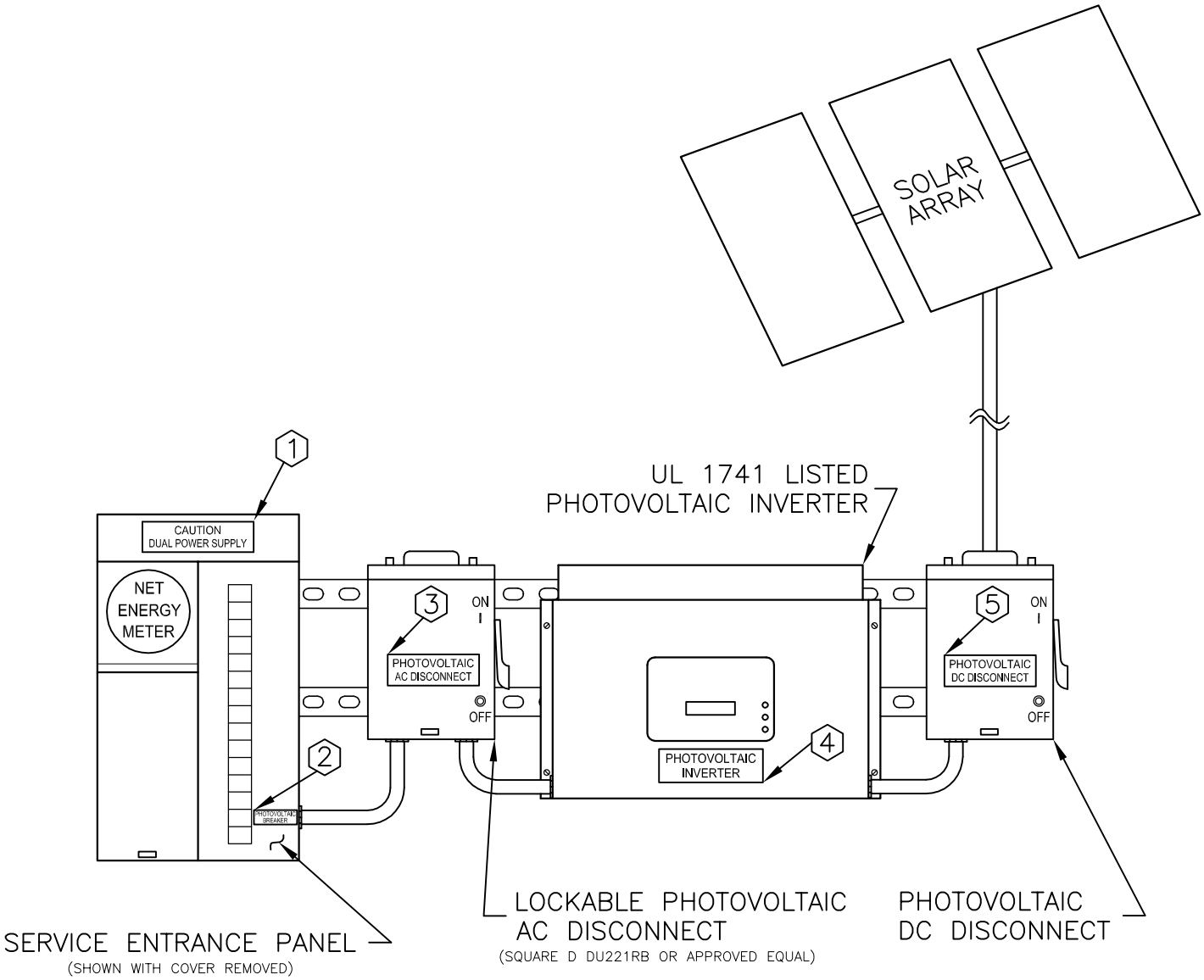
Grid Tie Metering will be applicable for cogeneration systems that fall between 10 kW and 100 kW in capacity. Grid Tie Metering will be provided by the City of Lodi in accordance with the established Rules and Regulations Section 21.H. After the customer has paid the appropriate fee, the City will set a Grid Tie Meter rated for the voltage supplied. Billing will be in accordance with the established City of Lodi Electric Rate Schedule.

LOCKABLE DISCONNECT:

A lockable disconnect device (Square D DU221RB or approved equal) shall be installed between the alternate energy source and the Service Entrance Panel. This disconnect must be within 10' of the Service Entrance Panel and must be accessible to the City at all times.

LABELING:

Cogeneration systems must be labeled in accordance with the requirements of this standard. All labels shall be affixed in a permanent manner appropriate to the installed device.



NOTES:

1. AC DISCONNECT TO BE ACCESSIBLE TO CITY OF LODI AT ALL TIMES AND SHALL BE MOUNTED WITHIN 10' OF THE SERVICE ENTRANCE PANEL.
2. LABELING 1, 2, 3, 4, 5, PER SHEET 4 OF 4.
3. ALL ELECTRICAL CONSTRUCTION MUST MEET CITY OF LODI MUNICIPAL CODES AND CALIFORNIA ELECTRIC CODE BOOK REQUIREMENTS.

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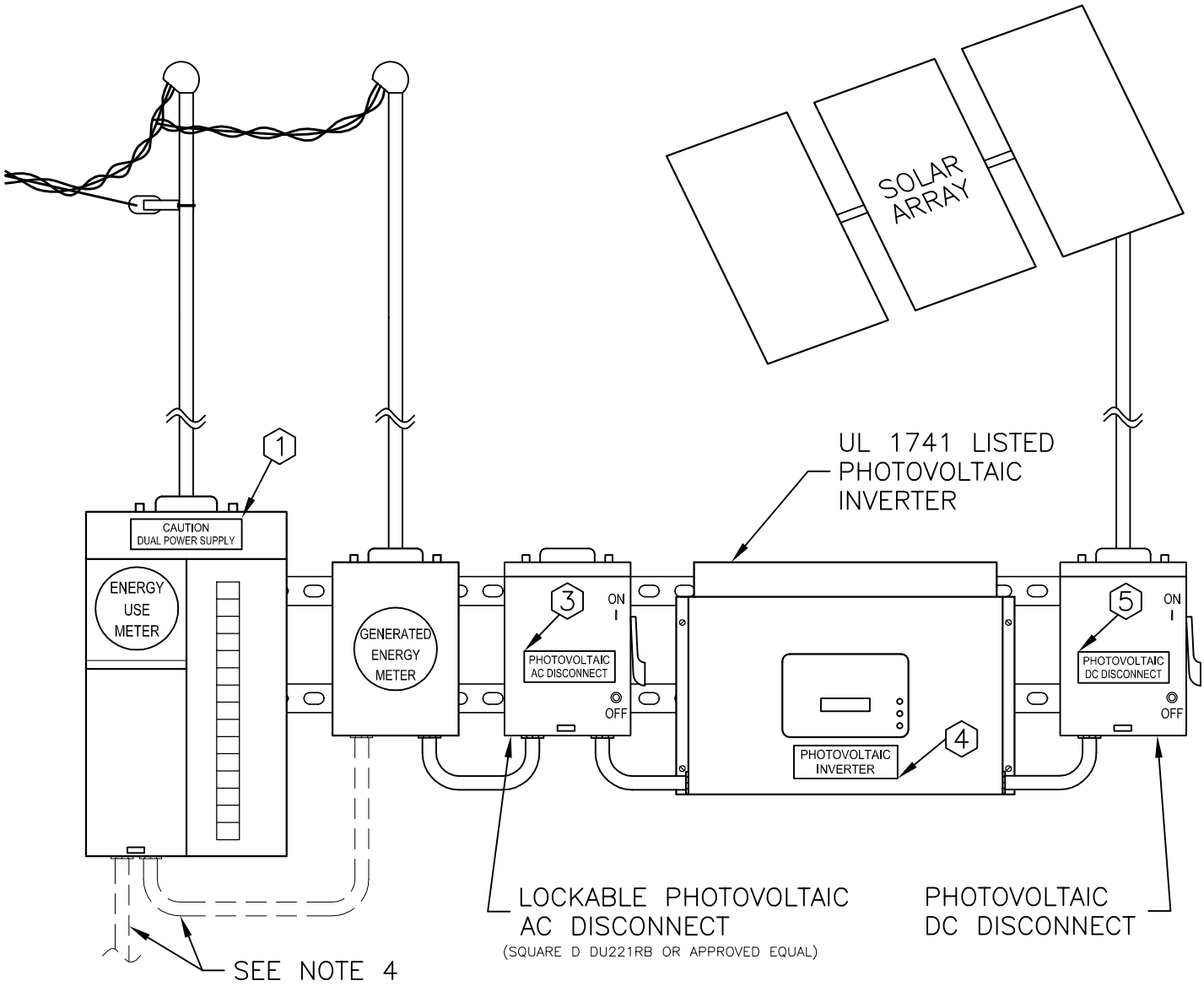
CITY OF LODI
ELECTRIC UTILITY DEPARTMENT

ENGINEERING STANDARD

COGENERATION METERING
(NET ENERGY METERING)

03/31/06	EF/RT	EF	Ams	04-03-06	SHEET 2 OF 4	942 0240
DATE	DRAWN	DESIGNED	CHECKED	APPROVAL	REVISION	



NOTES:

1. AC DISCONNECT TO BE ACCESSIBLE TO CITY OF LODI AT ALL TIMES AND SHALL BE MOUNTED WITHIN 10' OF THE SERVICE ENTRANCE PANEL.
2. LABELING 1, 3, 4, 5, PER SHEET 4 OF 4.
3. ALL ELECTRICAL CONSTRUCTION MUST MEET CITY OF LODI MUNICIPAL CODES AND CALIFORNIA ELECTRIC CODE BOOK REQUIREMENTS.
4. FOR UNDERGROUND FED METERS; IT SHALL BE THE CUSTOMERS RESPONSIBILITY TO PROVIDE LANDING LUGS IN THE "PULL SECTION" OF THE SERVICE ENTRANCE PANEL.

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CITY OF LODI
ELECTRIC UTILITY DEPARTMENT

ENGINEERING STANDARD

COGENERATION METERING
(GRID TIE METERING)

03/31/06	EF/RT	EF	AMS	04-03-06	SHEET 3 OF 4	942 0240
DATE	DRAWN	DESIGNED	CHECKED	APPROVAL	REVISION	

LABELS SHOWN AT MINIMUM SIZE

1. CAUTION
DUAL POWER SUPPLY

2. PHOTOVOLTAIC
BREAKER

3. PHOTOVOLTAIC
AC DISCONNECT

4. PHOTOVOLTAIC
INVERTER

5. PHOTOVOLTAIC
DC DISCONNECT

NOTES:

1. LABELS SHALL BE MADE OF RED PLASTIC MATERIAL WITH ENGRAVED WHITE LETTERS.

2. "PHOTOVOLTAIC BREAKER" LETTERS TO BE ⅛" MINIMUM IN HEIGHT, ALL OTHER LETTERING TO BE ¼" MINIMUM IN HEIGHT.

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CITY OF LODI
ELECTRIC UTILITY DEPARTMENT

ENGINEERING STANDARD

COGENERATION METERING
(LABELING REQUIREMENTS)

03/31/06	EF/RT	EF	Ams	04-03-06	SHEET 4 OF 4	942 0240
DATE	DRAWN	DESIGNED	CHECKED	APPROVAL	REVISION	

Service and Meter Application
Load Information Sheet

Please complete a separate sheet for each service entrance panel.

Project Name: _____

Site Address: _____

Location: _____

Electrical Contact: _____

Title: _____

Phone: _____

Application:

- ☐ New Construction _____ Sq. Ft.
- ☐ Building Addition _____ Sq. Ft.
- ☐ Relocating Existing Service Entrance
- ☐ EV Charge Meter
- ☐ Underground Service
- ☐ Overhead Service
- ☐ Commercial – No. of units _____ Sq. Ft.
- ☐ Residential – No. of units _____ Sq. Ft.

Service Voltage (check one):

- ☐ 120/240V 1-phase, 3-wire
- ☐ 120/240V 3-phase, 4-wire
- ☐ 120/208V 3-phase, 4-wire
- ☐ 277/480V 3-phase, 4-wire
- ☐ 480V 3-phase, 3-wire (Ungrounded–requires ground detection equip.)
- ☐ EV Rapid Charge
- ☐ Other: _____

Note: EV charge station voltage must match main service voltage

Timing:

Date of Ground Breaking (est.): _____

Date to Energize: _____

Date to Final Grade (est.): _____

Hours of Operation Per Day: ☐8 ☐12 ☐16 ☐24

Service Disconnect:

Size (amps: _____

Switch Rating percentage): _____

Total Connected Load Information:

(KW or HP)	Description	Connected Load: 1-phase	Connected Load: 3-phase
Lighting:			
VAC:			
Receptacle:			
Process Heat:			
Water Heat:			
Space Heat:			
Motors*:			
Welders**:			
EV Charge Service ***			
TOTAL LOAD			

*Motor Load detail included above:

Description	Quantity	Size (HP)	Efficiency Rating	Phase / Voltage	Nema Code	Starts Per Hr. or Day	Starting Amps	Use

**Welder detail included above:

Description	Quantity	Size (kVA)	Type	Max. Inst. Demant	P.F. at Peak	Welds Per Minute	Cycles Per Weld	Hours Per Day Use

*** EV Vehicle detail:

Make	Model	Year	Mfg. Rated Connected Load	Comments

Service and Meter Application
Sequence of Events

Applying for a new or modified electrical service:

The City of Lodi Electrical Utility wants your request to be handled in a timely, efficient manner. In order for this to happen smoothly, we will need some important information from you. Please complete the attached load information sheet and submit it with your building permit request. The more accurate your information, the better we can provide the service you need. If you have any questions regarding this form please contact the Electric Utility at (209) 333-6811. Information about the Electric Utility and its policies and regulations can be found on our website at www.lodielectric.com .

Fees:

General: Community Development will collect all building permit fees. At the time of application, the Engineering Department will estimate your "cost to connect" and you will be billed before work starts. Upon receipt of payment, the work will be scheduled. At the end of the job, actual costs incurred will be calculated, compared to the estimate, and your bill will be reconciled.

Residential: The Electric Utility will charge only the actual cost to connect your panel to our existing system. In the case of a subdivision, the entire subdivision will be handled as a commercial development.

Commercial Development: The developer is responsible for the entire cost of any new development. This includes the cost of the installation of all facilities that must be installed on the site for that development and those substructures and facilities that will need to be installed at that time for any future development. Typically that would mean additional empty conduit runs and/or vaults to serve adjacent properties.

Transmission and Substation System Charge: Any new development and/or electric load outside the City boundaries as such boundaries existed on August 1, 2006, are subject to an additional fee. This fee is calculated based on the City of Lodi's Electric Utility Department Rule 15 and must be paid prior to construction.

Setting Your Meter:

Two things will have to happen before we can set your meter. First you must obtain a final inspection form the Building Department. An inspection can be scheduled by calling (209) 333-6716. Second, you must be signed up with the Finance Department for your new service. Once you have a signed final inspection, contact Billing Services at (209) 333-6719 to arrange for an electric meter set.

I hereby certify

Customer/Contractor Signature: _____ Phone: _____

Building/Project Address: _____

Date: _____