



Specifications for Grid-Connected Solar PV Systems

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In partnership with:



Climate Change Central



www.lassothesun.ca

DISCLAIMER

Climate Change Central is providing these Specifications as an information resource to organizations that are designing, supplying, installing and commissioning solar photovoltaic (PV) systems.

These Specifications were developed for the Alberta Solar Municipal Showcase project (2005 – 2009) and do not necessarily represent technical, policy or procedural guidelines set out by Climate Change Central, its funders or its project partners.

All of the information contained herein is provided to assist municipalities, businesses and individuals interested in developing their own grid-connected solar PV systems.

The Specifications, which are intended to be used as a complete package, are technically complete to our best understanding at the time of printing and are believed to be technically accurate.

Application of this information and results obtained are the responsibility of the user. No warranty for the accuracy of the information or its subsequent use is represented or implied by Climate Change Central or its partners.



Solar PV System Invitation to Bid

**Specifications for
Grid-Connected
Solar PV Systems**

NAME OF OWNER: _____

Grid-Connected Solar PV System

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¹ Division 00 and Division 01 sections are supplied if the PV system is a separate project on an existing building.

**Grid-Connected Solar PV System
Invitation to Bid**

NAME OF OWNER: _____

Grid-Connected Solar PV System

INVITATION TO BID

Project Name: _____

Project Number: _____

Project Description: _____

Project Building: _____

Address: _____

Project Owner: _____

Address: _____

Project Staff: _____

Position: _____

Telephone: _____

Issue of Bid Documents: The bid documents can be obtained directly from:

Person: _____

Organisation: _____

Phone #: _____

Relationship to Owner: _____

Conditions of Bid Acquisition: Refundable document deposit of \$ _____

Hard copy

Electronic copy

**Grid-Connected Solar PV System
Invitation to Bid**

Time and Place for Receiving Bids:

As per Section _____, "Instructions for Procurement":

Name of weekday: _____ (Monday...Friday)

Date: _____ (year month day)

At: _____ (hour:minute, am/pm, MDT or MST)

Via: fax e-mail (check all that apply)

Fax #: _____

E-address: _____

Site Meeting:

Not required

Required as per details below:

Date: _____ Time: _____

Location:

RSVP of site meeting attendance to: _____

**Grid-Connected Solar PV System
Invitation to Bid**

NAME OF OWNER: _____

Grid-Connected Solar PV System

LIST OF DRAWINGS, PHOTOGRAPHS, AND SCHEMATICS

The following items are included in these specifications.

Number	Title
---------------	--------------

SITE

S1	Site Plan
----	-----------

ELECTRICAL

PV1	Electrical Single-Line Drawing for Approvals (See Section 48 14 02, Part 2.1.3)
PV2	System Interconnection Drawing (See Section 48 14 02, Part 2.1.4)

PHOTOGRAPHS

P1	Photograph of south side of building or site showing possible array location and attachment slopes, shapes, and any PV array obstructions or shading
P2	Photograph of the south view from the possible array location showing trees, obstructions and other buildings
P3	Photograph of possible mechanical room showing possible inverter and switchgear locations, space and shape
P4	Photograph of electrical breaker panel

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Grid-Connected Solar PV System Invitation to Bid

NAME OF OWNER: _____

Grid-Connected Solar PV System

SUPPLEMENTARY DOCUMENTS

The following documents are referenced by these specifications. Multiple sources for the documents are listed here to ensure that you will always be able to access them. You can download them by clicking on "Resources" at the Alberta Solar Municipal Showcase web site, www.lassothesun.ca.

- a) Alberta Distributed Generation Interconnection Guide
 - The Wires Service Provider of the site where the PV system is to be installed can also provide a copy.
- b) Alberta Municipal Affairs Electrical Information Safety Bulletin STANDATA LEG-ECR-2
 - Download from (<http://www.municipalaffairs.gov.ab.ca/documents/ss/STANDATA/electrical/330-LEG-ECR-2-unsigned.pdf>)
- c) *PV and the Canadian Electrical Code*, CanSIA document #PB020
 - Contact the Canadian Solar Industries Association, www.cansia.ca.
- d) *Guide to PV System Design and Installation*, California Energy Commission, Report 500-01-020
 - Developed by Endecon Engineering for the California Energy Commission, Energy Technology Development Division. Sacramento, California. Download from (http://www.energy.ca.gov/reports/2001-09-04_500-01-020.PDF).

Grid-Connected Solar PV System Invitation to Bid

NAME OF OWNER: _____

Grid-Connected Solar PV System

ORGANISATION OF SPECIFICATION DOCUMENTS

These specification documents are organized as follows:

- a) Division 00: ²
 1. Section 00 20 00 describes the procurement and contracting requirements ²; and
 2. Section 00 41 53 details the list of requirements in submitting the bid ².
- b) Division 01:
 1. Section 01 00 00 describes the general requirements of the Work ².
- c) Division 48 14 describes the PV system requirements in detail as follows:
 1. Section 48 14 00 introduces the PV work;
 2. Section 48 14 01 describes general conditions that apply to all of Division 48 14;
 3. Section 48 14 02 describes procurement of the PV system's design;
 4. Section 48 14 03 describes procurement of the PV system's equipment and Owner training;
 5. Section 48 14 04 describes procurement of the PV system's materials, hardware, documentation, and installation;
 6. Section 48 14 05 describes procurement of the PV system's commissioning; and
 7. Section 48 14 06 provides a detailed primer for general contractors who are not familiar with solar PV systems.

Division 48 14 is organised and written to enable:

- The Owner to solicit bids separately, together, or in any combination of the Work to design, supply, install and commission the PV system; and
- A bidding team to organise itself effectively, efficiently, and competitively, to align itself with appropriate Design Contractor, Supply Contractor and Installation Contractor, and to create a single bid for the Work.

NOTE: Though the number of pages in this specification may seem to be long, it is fully expected that prospective Bidders who are very familiar with PV systems will quickly read the requirements of Division 48 14 and find that it is easy to be in compliance with them.

² Division 00 and Division 01 sections are supplied if the PV system is a separate project on an existing building.

Section 00 20 00

Instructions for Procurement

**Specifications for
Grid-Connected
Solar PV Systems**

PROJECT:

OWNER:
PROJECT #:

DIVISION 00

PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00 20 00

INSTRUCTIONS FOR PROCUREMENT

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1.2 Form Of The Contract

- .1 The contract will be of a form specified by the Owner.
- .2 The Contract Agreement and General Conditions will be of the Canadian Construction Documents Committee standard construction document CCDC 2, "Stipulated Price Contract".
- .3 The Contract Agreement and General Conditions will be of the CCA-CSC-RAIC standard construction document 14, "Design-Build Stipulated Price Contract".

PROJECT:

OWNER:

PROJECT #:

1.3 Form Of The Bid

- .1 Bids shall be submitted on the bid form in Section 00 41 53
- .2 Bids shall be submitted on the bid form specified by Owner.
- .3 Bids shall be submitted on the Canadian Construction Documents Committee form CCDC 10 "Stipulated Price Bid Form" available with CCDC 23 "Guide to Calling Bids and Awarding Construction Contracts". CCDC 23 can be purchased at the local Construction Association office.
- .4 Address bids to the Owner and titled as _____.
- .5 Bids shall be for the Work in its entirety and partial or incomplete submissions will not be considered. Each Bid shall be dated, shall show the full legal name and business address of the Bidder, and shall be signed with the usual signature of the person or persons authorized to bind the Bidder. The name of each signature shall be typed or clearly imprinted below each signature.
- .6 In the case of a corporation, the corporate seal must be affixed to the Bid and the Province of Incorporation must be stated.

1.4 Bid Closing Time And Submissions

- .1 Bids shall be submitted to:
Name: _____
Organisation: _____
Position: _____
Relationship to project: Owner Consultant (check one that applies)
- .2 Bids will be received via: fax e-mail (check all that apply)
To fax #: _____
To e-address: _____
- .3 Bids shall be received before:
_____ local time (hour:minute, am/pm)
Name of weekday: _____ (Monday...Friday)
Date: _____ (year month day)
As determined by the bid receiving clock located at:

PROJECT:

OWNER:

PROJECT #:

1.5 Sufficiency of Bid

- .1 The submission of a bid shall constitute an unquestionable representation by the Bidder that:
 - .1 The Bidder has complied with all bidding requirements,
 - .2 The Bidder is qualified and experienced to supply the goods and services in accordance with the Bid Document,
 - .3 The bid is based upon supplying the goods and services in accordance with the Bid Document, without exception, and
 - .4 The price or prices stated in the Bid cover all the Bidder's obligations under the Contract and all matters and things necessary for supplying the goods and services in accordance with the Bid Document.

1.6 Contract Time

- .1 Substantial Performance of the work shall be completed no later than:
Date: _____ . (year month day)
- .2 Total Performance of the work shall be completed no later than:
Date: _____ . (year month day)

1.7 Bidders' Inquiries

- .1 All Bid-related inquiries must be received not later than _____ calendar days before the Bid Closing Time. Replies to such inquiries may be made in the form of Addenda to the Contract Documents that will be issued simultaneously in writing to all persons who have obtained a copy of the Contract Documents in accordance with the Invitation to Bid.
- .2 Submit all Bid-related inquiries to:
Name: _____
Organisation: _____
Position: _____
Relationship to project: Owner Consultant (check one that applies)
Phone #: _____
E-address: _____

1.8 Contractor's Qualifications

- .1 Bidders must include a statement of qualifications.
- .2 Submit statement of qualifications using pages 1 and 2 on Canadian Construction Document Committee form CCDC 11, "Contractor's Qualification Statement".
- .3 Qualification Requirements are described in Division 48 14 as appropriate for that Section.

1.9 Examination Of Documents, Site Inspection & Site Conditions

- .1 Full size plan drawings of the building only can be viewed in the Offices at:
Building name: _____
Address: _____
- .2 Before submitting a Bid, the Bidder shall carefully examine the Contract Documents and all Addenda thereto issued and the site of the Work, and shall fully inform themselves as to the existing conditions and limitations which may influence their Bid and affect the execution of the Contract Agreement.
- .3 As a condition of the Contract, it shall be understood that the successful Bidder has visited the site of the Work and has satisfied her/himself as to the Work to be performed. Any failure to fully investigate the sites of the Work or the foregoing conditions, shall not relieve the Bidder from responsibility for estimating properly the difficulty or cost of successfully performing the Work.
- .4 Neither the Owner, nor any of their representatives or agents, assume any responsibility for any understanding or representation made by any of their representatives or agents, during or prior to the execution of the Contract Agreement.

1.10 Omissions And Discrepancies

- .1 Should the Bidder find discrepancies in, or omissions from, the drawings, specifications, or other documents, or should the intent or meaning of the Contract in the Contract Documents appear unclear or ambiguous to the Bidder, the Bidder shall at once forward to the Owner a written request for correction, clarification or interpretation before submitting their Bid. The Bidder making such request will be solely responsible for its timely receipt by the Owner. All such requests must be received not later than _____ calendar days before the Bid Closing Time. Replies to such inquiries may be made in the form of Addenda to the Contract Documents that will be issued simultaneously to all persons who have obtained a copy of the Contract Documents in accordance with the Invitation to Bid.

1.11 Requests For Approved Equals And Alternates

- .1 Only those materials and equipment named in the specifications, worksheets, and drawings shall be used as a basis for the preparation of the proposal and, unless otherwise permitted herein, only those materials shall be furnished under the contract. Other materials or equipment may be offered in substitution, provided the substitute manufacturer's name and catalogue numbers are stated in the Bid Proposal, together with amounts of savings, and provided the material is clearly demonstrated to have equivalent duty, strength and quality, and meets the design requirements and design intent. Any such changes in work must be approved by the Owner before implementation; any changes made necessary by such alternate or substitute equipment shall be made by the Contractor at their own expense.

1.12 Insurance Policies

- .1 The successful Bidder shall, within _____ calendar days after receipt of the Owner's Notice of Award, deliver to the Owner two (2) copies of certificates attesting to the fact that the required policies of insurance as outlined in the Contract Documents have been obtained by the Bidder.

1.13 Work Schedule

- .1 Within _____ calendar days after receipt of the Owner's Notice of Award, the Bidder shall submit a construction schedule to the Owner, showing dates and estimated accumulative percentage of progress towards completion of each phase of the Work.

1.14 Sub-Contractors

- .1 Each Bidder shall submit with their Bid the name and business address of each Sub-Contractor whom he intends to use to perform work or to render service to the Bidder during the course of the Contract. The section of work pertaining to each named Sub-Contractor must be given and the information recorded in the Bid Form.

1.15 Acceptance Or Rejection Of Bids

- .1 The bids will be accepted or declined on an as-bid package basis.
- .2 The Owner reserves the full right to, in its sole discretion, and according to its own judgement of its best interest:
 - .1 Reject any or all Bids for any reason whatsoever;
 - .2 Waive any technical or formal defect in a Bid and accept that Bid; and
 - .3 Award the contract to other than the low Bidder.
- .3 In no event shall the Owner be liable for a Bidder's cost of preparing a Bid.
- .4 The Owner will notify the successful Bidder in writing.
- .5 Bidders will not be permitted to alter or amend their prices after the time of closing. The Owner, however, reserves the right, at its sole discretion, to negotiate modifications of the terms of the Contract Documents with any Bidder, after the time of the closing of the Bids, prior to accepting a Bid and entering into a contract for the Work. Such negotiations may be with those Bidders who, in the Owner's opinion, have the most advantageous Bids, and the Owner may negotiate with several Bidders simultaneously. The Owner may have such negotiations with only one or some of the Bidders but shall not be required to or obligated to have such negotiations with any Bidder, or to offer modified terms to any Bidder. The Owner shall not incur any liability whatsoever to any Bidder as a result of such negotiations or modifications.
- .6 Any Bid that, as determined by the Owner, appears so unbalanced amongst the various items in the Bid Form as to be detrimental to the interest of the Owner, may be rejected.

PROJECT:

OWNER:

PROJECT #:

1.16 Award Of Contract

- .1 Following the Notice of Award, a Contract Agreement will be forwarded to the successful Bidder who will be required to execute it and return it to the Owner within _____ calendar days after receipt of the Contract Agreement. The Owner will promptly determine whether such Contract Agreement and Certificates of Insurance are as required by the Contract Documents and will forward a fully executed copy of the Contract Agreement to the successful Bidder. The failure of any Bidder to properly execute and return to the Owner the Contract Agreement, together with the required Certificates of Insurance and a satisfactory construction schedule, within the specified time period shall entitle the Owner to terminate the Contract and to award the Contract to another Bidder in accordance with the provisions of the Document.

1.17 Duration and Availability of Pricing

- .1 A Bidder may revoke a Bid at any time up until the Bid Closing Time. Bid proposals are considered to be irrevocable for a period of not less than _____ days following the opening date, and may not be withdrawn, except with the express written permission of the Owner.
- .2 After the Bid Closing Time, a Bid shall remain valid and irrevocable until _____ days after the time of closing, even if the Owner accepts another Bid.

1.18 Owner's Property

- .1 This invitation, and all drawings, designs, specifications and other data appended or related to it are the property of the Owner and are delivered only for the purpose of enabling potential Bidders to prepare and submit a Bid in response thereto. The information contained or referred to in the Invitation to Bid or appended to it, is not disclosed or released for any other use or purpose and must be returned to the Owner by any Bidder to whom a Contract is not awarded.

1.19 Goods And Services Tax (G.S.T.)

- .1 The Bidder shall include separate from the Bid Price an amount for G.S.T. in the location provided in the Bid Form.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

Section 00 41 53

Bid Submittal List

**Specifications for
Grid-Connected
Solar PV Systems**

PROJECT:

SECTION 01 41 53
BID SUBMITTAL LIST

OWNER:

PAGE 1 OF 13

PROJECT #:

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 41 53
BID SUBMITTAL LIST

PART 1 - GENERAL

1.1 General Instructions

- .1 This Section covers the minimum information required in submitting information in response to a request for bid for this project.

1.2 Related Instructions

- .1 The Sections of Division 48 14 cover the procurement of design, equipment, materials, hardware, documentation, labour, supervision, commissioning and training required for the installation of a grid-connected PV system.
- .2 Refer to Section 48 14 06, Solar PV System Background Narrative.

1.3 Related Work

- | | | |
|----|------------------------------------|------------------|
| .1 | Solar PV System Introduction | Section 48 14 00 |
| .2 | Solar PV System General Conditions | Section 48 14 01 |
| .3 | Solar PV System Design | Section 48 14 02 |
| .4 | Solar PV System Equipment | Section 48 14 03 |
| .5 | Solar PV System Installation | Section 48 14 04 |
| .6 | Solar PV System Commissioning | Section 48 14 05 |

PROJECT:

**SECTION 01 41 53
BID SUBMITTAL LIST**

OWNER:
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PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

PROJECT:

SECTION 01 41 53
BID SUBMITTAL LIST

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NAME OF OWNER

Grid-Connected Solar PV System

BID SUBMITTAL LIST

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6.	SYSTEM PRICING	10
7.	WARRANTIES	11
8.	STAFF	12
9.	ADDITIONAL INFORMATION	13

3.1 Bid Submittal Requirements

- .1 To enable the Owner to compare bids and evaluate the design, conformance to specifications, and system features, the Contractor shall supply this Bid Submittal List.
- .2 The following information shall not be retyped or revised. These documents will be used to insure compliance with the technical and general specifications, and will be used in the bid review process. These must include (at a minimum) the following information for the bid to be considered responsive:

PROJECT:

OWNER:

PROJECT #:

**SECTION 01 41 53
BID SUBMITTAL LIST**

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1. BID COVERSHEET

I am authorised to enter this bid on behalf of:

Company name

Address

City/Town

Postal Code

Name of company representative authorised to enter bid

Title of company representative authorised to enter bid

Signature

Date

PROJECT:

OWNER:

PROJECT #:

SECTION 01 41 53
BID SUBMITTAL LIST

PAGE 5 OF 13

2. BID CHECKLIST

Bidding Company has
Submitted Checklist

Owner has
Verified Checklist

- | | | |
|-----------------------------------|--------------------------|--------------------------|
| 1. BID COVER SHEET | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. BID CHECKLIST | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. COMPANY IDENTIFICATION | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. REFERENCES | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. EQUIPMENT LIST | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. SYSTEM PRICING | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. WARRANTIES | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. STAFF | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. EVALUATION CRITERIA | <input type="checkbox"/> | <input type="checkbox"/> |
| SUBMITTALS | | |
| 10. PV module specification sheet | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Inverter specification sheet | <input type="checkbox"/> | <input type="checkbox"/> |

PROJECT:

SECTION 01 41 53
BID SUBMITTAL LIST

OWNER:

PAGE 6 OF 13

PROJECT #:

3. COMPANY IDENTIFICATION

Company name

Address

Address

City/Town

Postal Code

Business licence (if required)

Contact name

Title

Phone number

Fax number

E-mail address

CanSIA membership (check all that apply)

- System Design Contractor yes , membership # _____ no
- Equipment Supply Contractor yes , membership # _____ no
- System Installation Contractor yes , membership # _____ no

PROJECT:

OWNER:

PROJECT #:

**SECTION 01 41 53
BID SUBMITTAL LIST**

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4. REFERENCES

Project Reference #1:

#1. Project Name

#1. Project Description (add additional pages if necessary)

#1. Project Owner:

#1. Project Contact Name:

#1. Project Contact Phone #:

PROJECT:

OWNER:

PROJECT #:

SECTION 01 41 53

BID SUBMITTAL LIST

PAGE 8 OF 13

Project Reference #2:

#2. Project Name

#2. Project Description (add additional pages if necessary)

#2. Project Owner:

#2. Project Contact Name:

#2. Project Contact Phone #:

PROJECT:

OWNER:
PROJECT #:

5. EQUIPMENT LIST

System Characteristics:

- 1) PV Module Manufacturer/Model #: _____
- 2) Rated PV Array Capacity: _____ W_{DC} @STC
- 3) Proposed Array Location and Mounting Configuration: _____

- 4) Mounting Rack Manufacturer/Model #: _____
- 5) Inverter Manufacturer/Model #: _____
- 6) Rated Inverter Output Capacity: _____ W_{AC}
- 7) Proposed Inverter Location: _____

- 8) Include any other (brief) information that would help describe your proposal.

PROJECT:

SECTION 01 41 53
BID SUBMITTAL LIST

OWNER:

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PROJECT #:

6. SYSTEM PRICING

The bids will be accepted or declined on an as-bid package basis.

- 1) Hourly design fee rate: _____ \$/h
- 2) Duration of time to complete the design: _____ h
- 3) Array Price: _____ \$/W
FOB on site, not installed, GST out
- 4) Inverter Price: _____ \$/W
FOB on site, not installed, GST out
- 5) System labour cost: _____
- 6) Total system bid price: _____ \$/W. Bid cost: \$
Installed, inclusive of everything including documentation and Owner training, GST out
- 7) Permits: type and cost: _____
- 8) Division 1 cost allowance: _____
See Section 01 00 00, Part 1.7 for details.
- 9) Bid quote expiry date: _____
- 9) Expected design delivery time: _____
- 10) Expected lead time for delivery of equipment: _____
- 11) Expected installation date: _____

PROJECT:

OWNER:

PROJECT #:

SECTION 01 41 53

BID SUBMITTAL LIST

PAGE 11 OF 13

7. WARRANTIES

1) Warranty on PV system design:

See Section 48 14 02, Part 3.16 for details.

2) Warranty on PV system equipment and materials: _____

See Section 48 14 01, Parts 2.7, 2.8, Section 48 14 03, Part 2.3 for details.

3) Warranty on PV system labour: _____

See Section 48 14 04, Part 1.12 for details

PROJECT:

OWNER:

PROJECT #:

8. STAFF

Provide names of any key staff who will work on this project

1) Name: _____

Task: _____

2) Name: _____

Task: _____

3) Name: _____

Task: _____

4) Name: _____

Task: _____

Provide details of any sub-contracted work

5) Name of sub-contractor: _____

Task: _____

6) Name of sub-contractor: _____

Task: _____

7) Name of sub-contractor: _____

Task: _____

PROJECT:

OWNER:
PROJECT #:

9. ADDITIONAL INFORMATION

The information provided below will be used in the bid review process.

- 1) Describe the technical support that the Contractor will provide to the Owner and for what duration.

- 2) What are the Contractor's qualifications and experience in relation to the project's Scope of Work? Have the Contractors designed, supplied or installed any other grid-connected solar PV systems?

END OF SECTION

Section 01 00 00

General Requirements

**Specifications for
Grid-Connected
Solar PV Systems**

PROJECT:

SECTION 01 00 00
GENERAL REQUIREMENTS

OWNER:

PAGE 1 OF 4

PROJECT #:

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 00 00
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 Work Summary

- .1 This project consists of furnishing the design, equipment, materials, hardware, documentation, labour, and supervision required for the installation of a complete grid-connected solar electric (photovoltaic or PV) generating system at:

Address of site:

1.2 Related Instructions

- .1 The Sections of Division 48 14 cover the procurement of design, equipment, materials, hardware, documentation, labour, supervision, commissioning and training required for the installation of a grid-connected PV system.
- .2 Refer to Section 48 14 06, Solar PV System Background Narrative

1.3 Related Work

- | | | |
|----|------------------------------------|------------------|
| .1 | Solar PV System Introduction | Section 48 14 00 |
| .2 | Solar PV System General Conditions | Section 48 14 01 |
| .3 | Solar PV System Design | Section 48 14 02 |
| .4 | Solar PV System Equipment | Section 48 14 03 |
| .5 | Solar PV System Installation | Section 48 14 04 |
| .6 | Solar PV System Commissioning | Section 48 14 05 |

PROJECT:

OWNER:

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1.13 Protection 4

1.14 Warranty 4

PART 2 - PRODUCTS 4

PART 3 - EXECUTION 4

1.5 Hours Of Work

.1 Work shall normally be performed between

Start time: _____ and end time: _____

with work allowed or not allowed on Saturdays, Sundays, and statutory holidays.

For critical items of work that might inconvenience normal operations if the work were done during normal hours, permission for night work will be granted subject to certain specified limitations. Notify operating personnel of intended work schedules and access requirements.

1.6 Interruption Of Existing Facilities

.1 Co-ordinate utility outages with

Name: _____

Organisation: _____

Position: _____

Phone #: _____

E-address: _____

.2 Co-ordinate a minimum of _____ days prior to the desired outage. If such outages must be scheduled for a time other than the normal workday, they shall be accomplished at no additional cost.

1.7 Cost Allowance

- .1 The Owner does not have a separate quote or estimate for any portion of the Work.
- .2 The Owner has a separate quote or estimate for the following work:

Scope of work: _____

Contractor: _____

Amount of quote or estimate: \$ _____

1.8 Liability

- .1 Be responsible for all work included in all the Divisions including the delegation of work to any Sub-Contractors. Be responsible for Sub-Contractors who perform work under these Sections.
- .2 Assume full responsibility for laying out the work and for any damage caused to the Owner or other Sub-Contractors by improper location, or carrying out of the work.
- .3 Be responsible for the condition of all materials and equipment both supplied and Owner-furnished, and for providing all necessary protection for same.
- .4 Be responsible for the protection and maintenance of the work of all Sections until the work has been completed and accepted by the Owner, for storing materials inside and out of the way, and for cleaning up all refuse caused by this work to the Owner's approval.
- .5 No extras will be subsequently allowed for such error, omission or oversight on the thorough inspection of the grounds, building, conditions, *etc.*

1.9 Liability Insurance

- .1 Maintain such insurance as will fully protect both the Owner and him/herself from any and all claims.

1.10 Co-Ordination Of Trades

- .1 Be specifically responsible for the co-ordination and proper relation of the Work to the building structure or site and to the work of all Trades.
- .2 Arrange work in co-operation with other trades in the building or site in such a manner as not to interfere with other work being carried on in the building or site and places where other pipes, ducts, conduits, cable and equipment are to be installed along with the pipes, ducts, conduits, cable and equipment pertaining to this trade. Co-operate with the other trades to get all the pipes, ducts, conduits, cable and equipment, *etc.*, installed to the best advantage.
- .3 Where any pipes, ducts, conduits, cable and equipment must be built into the work of other trades such as structural or plastering, be responsible for supplying the equipment to be built in or for measurements to allow the necessary openings to be left. All pipes, ducts, conduits, and cable that are to be concealed shall be installed neatly and close to the building structure so that the necessary

furring can be kept as small as possible. Any pipes, ducts, conduits, cable, equipment, or other work that are not, in the opinion of the Owner, installed as they should be, shall be taken out and replaced without cost to the Owner.

1.11 Examination

- .1 Examine the site and the local conditions affecting work under this Contract. Examine carefully the mechanical, electrical, structural and architectural drawings and confirm that the work under this Contract can be satisfactorily carried out without changes to the building as shown on these plans. Before commencing the work, examine the work of the other Trades and report at once any defect of interference affecting the work or warranties of this section.

1.12 Workmanship

- .1 On completion of the work, remove all tools and surplus and waste materials and leave the work in a clean and perfect condition.

1.13 Protection

- .1 Protect finished and unfinished work from damage due to the carrying out of this work, giving special attention to the protection of building vapour barriers, waterproof membranes, *etc.* If required, cover floors and other parts of the building with tarpaulins, *etc.*, and repair all damage to the satisfaction of the Owner. During freezing weather, protect all materials in such a manner that no harm can be done to installations already in place and/or to materials and equipment on the job.

1.14 Warranty

- .1 Furnish the warranty requirements from other related Divisions.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION
