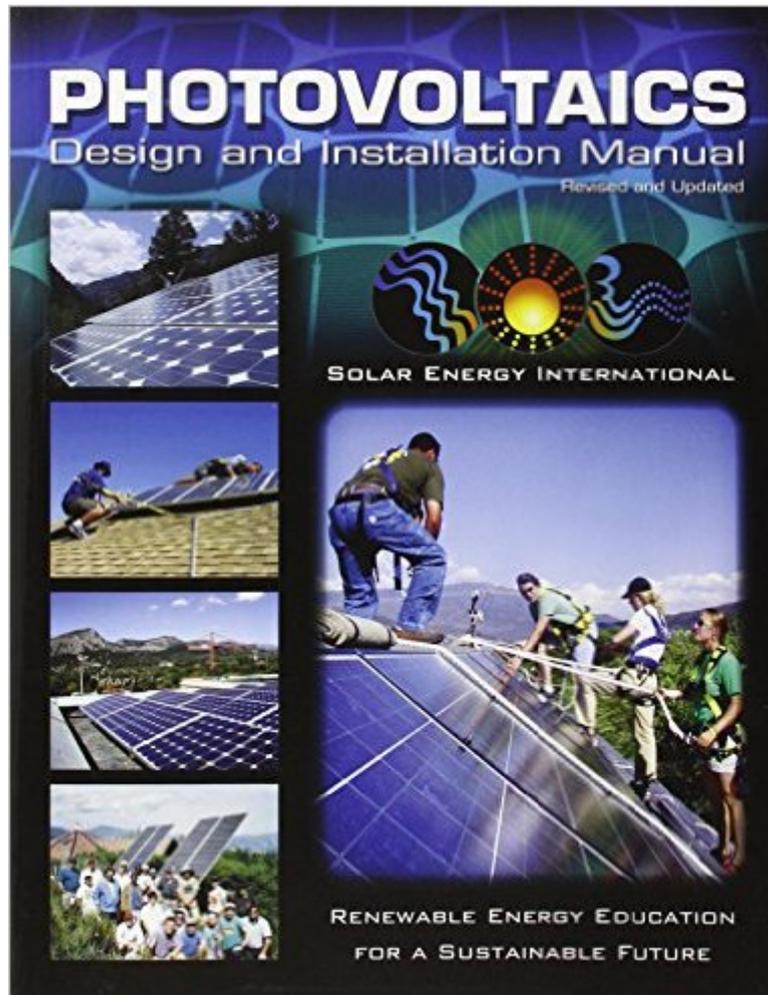


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# Photovoltaics: Design And Installation Manual



## Synopsis

Producing electricity from the sun using photovoltaic (PV) systems has become a major industry worldwide. But designing, installing and maintaining such systems requires knowledge and training, and there have been few easily accessible, comprehensive guides to the subject. Now, with *Photovoltaics: Design and Installation Manual*, a world-class solar energy training and education provider—Solar Energy International (SEI)—has made available the critical information to successfully design, install and maintain PV systems. The book contains an overview of photovoltaic electricity and a detailed description of PV system components, including PV modules, batteries, controllers and inverters. It also includes chapters on sizing photovoltaic systems, analyzing sites and installing PV systems, as well as detailed appendices on PV system maintenance, troubleshooting and solar insolation data for over 300 sites around the world. Used worldwide as the textbook in SEI's PV Design & Installation workshops, topics covered include: The basics of solar electricity PV applications and system components Solar site analysis and mounting Stand-alone and PV/generator hybrid system sizing Utility-interactive PV systems Component specification, system costs and economics Case studies and safety issues

*Photovoltaics* guarantees that those wanting to learn the skills of tapping the sun's energy can do so with confidence. Solar Energy International (SEI) has the nonprofit mission to respond to the need for renewable energy education. Based in Carbondale, Colorado, and active around the world, SEI is a link between people and renewable energy resources, providing information, education and training to people who want to shape a sustainable future. SEI is recognized by the National Board of Certified Energy Practitioners (NABCEP) as dedicated independent provider of PV training programs that may be used toward attaining PV certification. Also, SEI is recognized as an Accredited Institution to offer PV training by the Institute for Sustainable Power (ISP).

## Book Information

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## Customer Reviews

I am interested in designing and installing a DIY solar panel system for our home, so I purchased this book hoping that it would be packed with useful information for realizing such a project.

Unfortunately I found it to be rather "lite" (if you have done any type of electrical wiring beforehand) and not quite up to date. 80 whole pages are wasted with "insolation" tables and "sun charts" covering sample locations around the world .. from Alabama to Afghanistan .. an immense waste of space and trees. Otherwise, it is a well organized basic textbook with many worksheets, examples and diagrams. To improve the value of this textbook I recommend that the publisher 1) simply includes a link to the "insolation" tables available elsewhere on the Web, 2) includes additional and current data on the available component alternatives and a means for evaluating these alternatives in the design process, and 3) raises the assumed level of the audience addressed by this textbook.

After the first few pages I knew that this was a good reference. Being a DIY person I found that this book did an excellent job explaining the theory and gave examples of practical application. Things were explained in laymans terms and all aspects of materials to use and the installation process were covered. At the end of every chapter there are questions to test your understanding of the material. These questions can be easily adopted to designing your own system. If you are considering installing a system yourself make this the first book you buy.

As a book writer and a teacher, I was expecting to find step by step instructions on selecting, purchasing and installing pv panels. The book has a lot of charts and graphs that have value only as additional information in an appendix. I am fairly knowledgeable on similar do-it-yourself projects but found this book quite disappointing.

Not a bad book, but it gives itself way too much credit by billing itself as a "Design and Installation Manual". This 315 page book could be condensed into a 50 page useful book entitled "A Basic Introduction to Considerations in Photovoltaic Design and Installation". It's choppy to read, and it

has a lot of filler, generalities, and truisms. Expect a lot of this: "The major aspects of installing the photovoltaic array are choosing the most applicable mounting systems and making a proper installation". Some of the electrical theory is questionable. Still, it's the best book I've found, which means there is a great opportunity for a knowledgeable PV systems integrator who can write well and put together a comprehensive, well-written text on the subject.

The 70 pages of solar data was a definite waste of paper. I just went to the referenced website and downloaded the data plus additional temperature data for my site so I could better estimate panel derating during the summer. The book mentions the need to derate expected panel performance in several places but doesn't provide the data or worksheets to do this. I also found the discussion on wiring dissimilar modules to be misleading and incomplete. My impression of the book is that it was a compilation of notes from several different instructors and probably makes a good textbook/workbook but definitely falls short of being a good stand-alone installation manual. The best design and installation information I have found is free at the Sandia Labs website ([...] This and other websites and resources are listed in the book. I did learn a few things reading the book and I expect the worksheets may come in handy.

It is a nice overview of the subject, however it lacks specifics. It would be nice if it covered more about installation and supplies.

Am afraid anyone with either a basic electrical or a mechanical background would find this sadly lacking, one with both these backgrounds as well as a strong science backing would see it as little more than a comic book. This book had no depth in any subject matter and wasted thirty percent of its volume with useless data on cities that one could easily source elsewhere. A one minute look was all that was needed to be sufficiently disappointed. If you are serious about building a PV system look elsewhere, this is NO manual!

The first half of this book provides useful basic information on solar systems but it's quite out of date. The second half of the book is missing in that it is padded with solar insulation tables and other things much easier to find on the internet. Skip this book.

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