

## Photovoltaic Power Systems

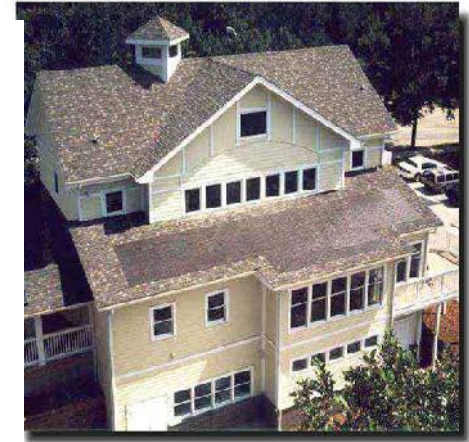
Photovoltaic (PV) power systems convert sunlight directly into electricity. There are two primary types of PV cells: crystalline silicon and amorphous silicon. Crystalline cells require a glass enclosure to protect them, while amorphous cells can be exposed directly to the weather, are flexible, durable and maintain their performance level better in high temperatures, although they also take more space and are typically more expensive. The amorphous PV panels are also available in what is known as Building Integrated Photovoltaics or BIPV.



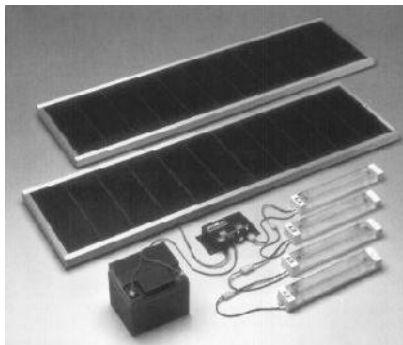
BIPV systems include shingle roofing and metal roofing with PV cells incorporated into them. These roofing systems generate electricity and provide long-lasting roofing at the same time. The amorphous silicon PV cells that are part of the roofing are guaranteed to perform to at least 80 percent of the rated power output after 20 years of use.



PV systems can power electrical equipment directly, or be used to store electricity in batteries for use later, at night and/or during emergencies requiring backup power. PV systems have applications in both residential and commercial buildings where reliable, earth-friendly power generation is desired.



PV power can be used in large and small applications. Remote lighting can be accomplished with simple, packaged systems sized to accomplish the number of nighttime hours and quantity of lighting required. Large commercial systems can also be designed to provide primary power to retail and manufacturing facilities.



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