

Ypsilanti is located where an old Indian trail crossed the Huron River and was the camping and burial grounds for several native American tribes. The town was formed in 1823 as Woodruff's Grove and later renamed to Ypsilanti (ip-s'-In-t) in 1825 after the Greek patriot General Demetrius Ypsilanti when it moved a mile north to be on the federal highway from Detroit to Chicago. This road is now called M12 or Michigan Avenue as it passes through Ypsilanti. The City of Ypsilanti's City Hall sits on the corner of Michigan Avenue and Huron Street.

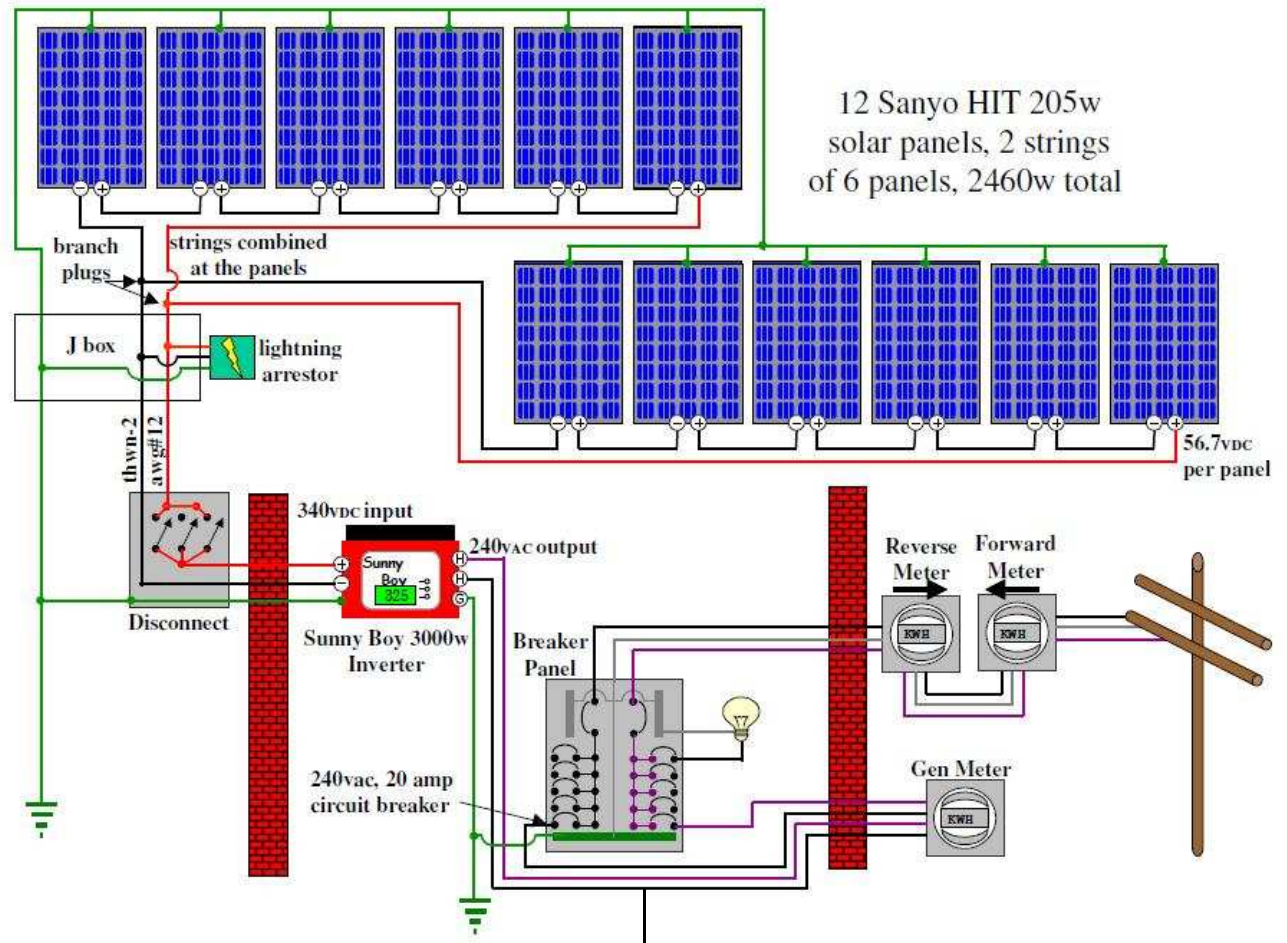


In 2007, a group of volunteers wanted to install solar panels on the back of City Hall. The group was able to raise \$1050 in local donations towards the project and in 2008, with help from the Ypsilanti Food Cooperative, was awarded a grant for roughly \$36,000 from the State of Michigan's Department of Labor and Economic Development. This grant funded the doubling of the existing solar panels on the Ypsilanti Food Cooperative's roof and to install this new system on the back wall of Ypsilanti's City Hall. This is the second installation of solar panels in the Ypsilanti Historic District and the first installation of solar panels on a City Hall in the state of Michigan.

How Solar Power is Captured

As illustrated in the diagram below, sunlight penetrates the photovoltaic panels, which converts a portion of that light into electrical current. The panels are mounted at a fixed 38 degree angle to maximize annual solar collection at our location. This electrical current is direct current (DC) which is carried through a wire to a disconnect switch that can turn the system off for maintenance. The DC power is then routed to the Sunny Boy inverter, which converts DC electricity into standard, 110 volt, 60 cycle alternating current (AC) that we find in an ordinary wall outlet. The power is now ready to be used and is routed to the City Hall's electrical service panel for distribution to individual circuits.

The solar installation is connected to the utility company under a *net-metering* program. This is a system of three utility meters which measure: Power generated by the solar panels, energy that enters the building from DTE, and energy that is *exported* from the building back to the utility. DTE Energy reads these meters monthly and itemizes the information on our monthly bill. Any excess power generated gives us *credit* which can be used when the sun is not shining. City Hall is a large building and consumes all of the power from the current 2.5KW system. Hopefully with additional energy conservation the building will be able to export excess power when the building is closed. Real-time energy graphs for this and other systems and can be found at **SolarYpsi.org**.



The picture below shows a voltmeter measuring the DC volts coming from the twelve photovoltaic panels. The voltmeter shows that the panels are producing about 400 volts (DC) at the disconnect switch before the power heads into the building to be converted into alternating current (AC) in sync with the building's power. The diagram in this pamphlet shows that the twelve panels are wired as two strings in parallel with each string having six panels wired in series.



The AC power leaving the inverter is then routed out of the building where it is connected to a utility meter to measure the power and routed back into the building and connected to the electrical service panel. When someone uses power in the building, energy will flow from the installation and be consumed by what every appliance was tuned on. If there is more demand for power than the solar installation can provide, power from the utility will also flow in and be consumed by the building.

Graphs showing the power coming into City Hall (red), exported out (green), and generated from the sun (yellow) can be seen at **SolarYpsi.org**, then clicking on the City Hall link. The website also has photos of the installation and details about the project.



The solar installation at the City of Ypsilanti's City Hall is unique in several ways. This is the second solar installation within the Ypsilanti Historic District. Having the panels on the back of building preserves the Historic character of the front of the building while adding renewable energy. The installation is also the first City Hall in Michigan with solar panels, and one of the few DTE Energy customers connected via net-metering. We are also the first net-metering customers to use utility meters with a customer interface so that we can read the meters directly and plot the information on the SolarYpsi.org website.



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City of Ypsilanti



Solar Power

The City of Ypsilanti is located in Washtenaw County in Southeast Michigan. In 2009 a group of volunteers installed 12 solar photovoltaic panels on the back wall of City Hall. This system provides about 2.5KW of renewable energy that is used by the building. Stop by and learn about solar power in Michigan.

Weekdays 8:00am to 5:00pm

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