

Questions and Answers

Autodesk Green Building Studio Web-Based Service Provides More Than a Million Hourly Weather Locations for Whole Building Analysis

Architects and building engineers have a unique opportunity to help reduce greenhouse gas (GHG) emissions from buildings and in so doing address the climate change crisis. To do this effectively, increasing attention must be paid to **designing for local climatic conditions**.

Using tools like Autodesk® Ecotect® Analysis software which includes access to Autodesk® Green Building Studio® web-based service for subscribers, architects and engineers can now use **recent, local weather data** to more quickly and accurately estimate whole-building energy consumption and simulate how environmental conditions may impact building performance in 1.6 Million places around the world.

The Autodesk Green Building Studio web-based service now provides **a vast hourly weather dataset for building energy analysis, with coverage in more areas than ever before**.

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Weather Data

For which countries is weather data available?

- Autodesk Green Building Studio includes weather data to support the analysis of projects in North America, Europe, Asia-Pacific and Russia.
- Asia-Pacific regions include Australia, New Zealand, India, China, Japan, Philippines, and South Korea.

What is the source of the weather data?

- The weather dataset in Autodesk Green Building Studio is generated by consuming data from a variety of government and other public sources: airports, buoys in the ocean, satellite readings, and more. All of this disparate measured data with different time steps is combined and used to create a physics model of the region being considered. The physics model is then used to generate predicted data at the resolution that we supply. The higher the resolution of the data being fed into the model, the more precise the predictions from the model will be. It is these predictions that we use as our higher resolution weather data.
- The virtual weather locations were developed using weather data from a variety of government and other public sources, such as airports, ocean or river buoys, aircraft and satellite readings. Modeled climactic data is often used to predict the impact of events at industrial facilities, power plants, and refineries, etc. For example, what will happen to a smoke plume from a refinery if there is an explosion? The MM5 modeling system is used to predict air quality around the refinery for such an event.

How comprehensive is the weather data?

- Previously Autodesk Green Building Studio weather data was only available for 1020 sites in the US and about 1000 internationally, nearly all of which were using data that was collected at large airports. With this release, Green Building Studio now includes data from more than 1.5 million virtual weather stations no farther than 8.8 miles (14 km) from any given project location covered by the data set.
- Weather data from the climate servers used by Autodesk Green Building Studio is among the most current available. Older weather data sets do not capture recent changing climate conditions – information designers need in order to achieve more optimal building performance.
- To access more detailed information on how the Green Building Studio weather data is modeled, you can download the Weather Data Technical White Paper here: http://images.autodesk.com/adsk/files/weather_data_greenbuildingstudio_adsk_white_paper.pdf. (Please note, this whitepaper covers weather stations in the U.S. only, however the technical information is relevant to stations in other locations around the world.)

With so many weather locations to choose from, how do I choose the right one for my project?

- One of the most important factors to consider is distance. In general, the closer a weather station is to a project location, the more representative the data will be. This is especially important in an area that may have complex terrain or microclimates.
- Another factor to consider is the elevation of your project. The project elevation and the weather station elevation should be similar. It would be inappropriate to choose a weather station that sits on top of a mountain peak or even on the other side of a mountain if the project location sits in a valley. In addition, to mapping and

AUTODESK GREEN BUILDING STUDIO (WEATHER DATA) QUESTIONS AND ANSWERS

reporting distances, the Green Building Studio web service enables you to view the locations of available weather stations in a terrain, satellite, or hybrid view through the Google™ Map interface. This feature will show topographical and land use features that you can use to help you decide on an appropriate weather station.

- Land use is also another important factor to consider. Is your project next to a large body of water, which may moderate the local climate? In this case, an inland weather station would probably not represent your local project's weather. The mapping program in the Green Building Studio web service also helps you choose the closest weather station that may represent your location based on visible land and water features.
- Finally, the Green Building Studio web service mapping program automatically calculates degree days and design conditions for each weather station. This information can be useful in helping you determine if the station represents the weather you expect in the location. Or if you want to choose a station that has either hotter or colder extremes than you expect, Green Building Studio can help you determine this by looking at the design conditions and degree days.
- It is important to note that weather data is highly variable, and it is more important than ever for professionals to add to their competency around climate. The choice of the "best" weather file relies of professional judgment.

How do I access the new weather data?

- Simply by using the service. Because Green Building Studio is Software-as-a-Service (SaaS) application delivered over the web, new features become immediately available to everyone using the service as soon as they are released.

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