

Reprinted with the permission of Davis Instruments Corporation and the Davis Weather Club e-newsletter.

Locating your sensors to get the best picture of what's happening outside is a tricky business. For example, if you put the temperature sensor smack in the middle of a field with no shadows and no shield, you'll soon be measuring the cooking temperature of the sensor casing rather than the field's ambient air temperature. Similarly, Larry Huff of Ohio wrote in with the following concern about rain collector positioning:

I notice that many users of the Davis rain gauge will mount it well above the ground. In fact, many times the rain gauge is mounted on the roof just below the wind sensors.

This is a concern of mine since the National Weather Service (NWS) recommends the following: "The exposure of a rain gauge is very important for obtaining accurate measurements. Gauges should not be located close to isolated obstructions such as trees and buildings, which may deflect precipitation due to erratic turbulence. Gauges should not be located in wide-open spaces or on elevated sites such as tops of buildings, because of wind and the resulting turbulence problems" (from the National Weather Service Observing Handbook, Number 2, July 1989).

I thought that this might make for a helpful article for a future Davis Weather Club e-newsletter. By the way, I have my Davis rain gauge mounted on top of a three-foot post in my backyard.

Davis Comments: Good point, Larry, thanks for writing in. We asked Jason, Davis' resident meteorologist, to reply:

I would have to agree with Larry's concern. It's a good idea to use the NWS Observing Handbook for advice on sensor siting to obtain "representative" measurements. The NWS guidelines have been written based on general international guidelines set forth by the World Meteorological Organization (WMO), which specify that obstructions should not be closer to the collector than a distance twice the objects' heights above the rim of the collector.

As a rule of thumb, if you're placing the collector on the ground, try to position it at least 15–25' away from a single-story house (or, if possible, twice as far away from a two-story house) and at least 12' away from any standard privacy fences. And, of course, avoid nearby trees or power poles. That's tough for many people who live in urban and suburban areas. So, I would recommend going ahead and installing the rain collector on a fence post or the roof if you can't meet the above requirements (in order to lessen

the required distance between the rain collector and other objects). Just try to mount the collector near the top of the roof (for sloped roofs) to avoid excessive splash-in and away from the chimney (to avoid blocking the collector).

What are the experts doing? Well, the rim of NWS's own tipping bucket rain collector sits about 2.5' above the ground. Some National Oceanic and Atmospheric Administration (NOAA) installations have instruments installed on rooftops in urban areas—it seems even the standard bearers have trouble not violating the NWS requirements when it comes to precipitation.

FREE Technical Support

When you have a question, you can rely on our team of technical experts. They'll answer your questions about product specifications, chemical compatibility, regulatory issues, and general worker safety and health.

Call our Technical Support line toll-free:
1-800-241-6401
7 a.m. to 7 p.m. CT, Monday–Friday

FREE Catalog

When the outdoors is your office, turn to a Ben Meadows Catalog. In it you'll find thousands of products and our 100% guarantee to stand behind them.

Call today to reserve your free copy:
1-800-241-6401
7 a.m. to 7 p.m. CT, Monday–Friday

Please note: The information contained in this publication is intended for general information purposes only. This publication is not a substitute for review of the applicable government regulations and standards, and should not be construed as legal advice or opinion. Readers with specific questions should refer to the cited regulation(s), or consult with an attorney.