

The dangers and downfalls of do-it-yourself control panels



Do-it-yourself is a great idea for many things; but when it comes to building electrical control panels, it may be a bad move. Read this article to learn about the downfalls and dangers of building your own control panels.

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“Do-it-yourself” is a popular approach for people who have the tools, time, and needed skills. These projects can provide both personal satisfaction and significant savings. Whether it’s home improvements, car repairs, or assembling furniture, doing the work yourself usually does save money. But, every handy man and woman knows how these projects often result in less-than-satisfactory results ... and occasionally require calling a professional to make things right.

Many equipment owners and maintenance managers think a do-it-yourself approach makes sense when it comes to building and installing electrical control panels. It sometimes does. But, the resulting panels are often more expensive, less reliable, and most importantly, not as safe as one built in an actual panel shop.

What are some of the pitfalls of building your own panels?

More-expensive panels

People assume that building their own panels will save money. Sometimes it does, but, usually not when you add up all the costs.

First, there is the fact that people who build a panel once in a while are going to be much slower than someone who does it every day. Then, there is the time wasted finding the tools and parts needed. In a panel shop, those things are always close at hand.

Making your panel in-house will take as much as twice the number of hours as it would take most professional panel shops. That may not be important if building the panel is a fill-in project for your electrician between other jobs. In most shops visited, electricians seldom have time on their hands.

In addition to taking more hours, it will certainly take longer before the panel is finished. Your electrician may not be able to finish the panel without interruption. They maybe called away to deal with other, more critical things that come up. They may set the panel aside and return to it later – maybe days later. When the electrician returns to the panel, time maybe wasted coming back up to speed on the job. If the panel job was set aside for a day or two, there’s a good chance the tools and parts won’t be where left, adding more time to restart the project.

The right facility

When I observe panels being built in a plant, it's typically not done in a great environment. Quality panel shops tend to be very clean and well-lit, which makes the job go faster and ensures a higher-quality panel.

Aside from the major components in the panel, there are also the specialized tools and various pieces and parts that are required. Most maintenance areas, for example, won't have a splice kit to connect wires. Instead, they'll use wire nuts. Not only is this a less-reliable connection, it's also not permitted under certain standards.

Panels used in areas where there's vibration should have terminations with ferules and specialized terminals to ensure good connections. Therefore, the parts won't be part of the inventory in most maintenance shops.

Whether it's to meet a standard or just create a reliable connection, you may need tools like a torque screwdriver or wrench. You'll find those on the benches in panel shops, but probably not in most maintenance areas.

Skills and knowledge

Not to take anything away from the abilities of your electrician, there's some specialized knowledge needed to wire a panel properly. Much of that knowledge has to do with the standards that ensure safe, reliable panels. For example, an electrician might terminate three wires into one terminal – perfectly okay in most situations, but not permitted by some standards.

Most electricians have a pretty good understanding of the size and type of wire needed. However, how about requirements related to the bending radius and wire routing through the panel? I've been astonished at the low quality of panels built by people who are tremendous maintenance electricians but unfamiliar with panel construction. For example, I saw an enclosure with a wooden back pan along with starters and breakers attached to the wood. The panel was a fire waiting to happen.

Summary

Building your own panels is a great idea if you have the right people, tools, and facility. That's especially true in situations where you'll be making complex connections to existing equipment. Building the panel on site allows you to easily measure the location for penetrations and identify connections. Otherwise, the information would have to be documented and communicated to the panel shop, where it's hard to get the holes exactly where you need them.

There's little doubt that many competent electricians can build a control panel that will work. How long will it take to build it? What's the real cost of building it in-house? How reliable will it be? What's the risk of a failure that could delay production or possibly damage the equipment it's connected to?

Doing it yourself may be a great idea for that bookshelf from Ikea. But, when it comes to your electrical control panels, you may want to leave the job to the professionals.