

Testing Times

A newsletter for the electrical construction and maintenance industry

Volume 7 No. 2

Your Testing Dollars

Many times in the last few years, we have come across electrical testing specifications that call for the following test:

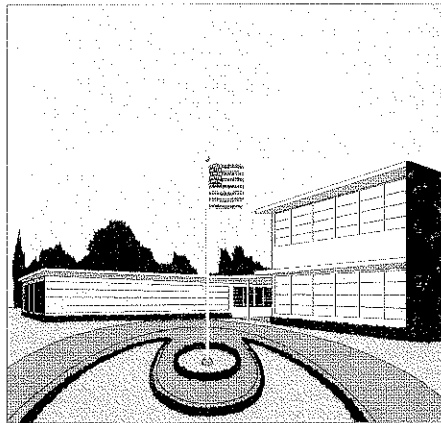
"Ground resistance shall be measured by a registered professional engineer in accordance with IEEE 81-1983".

This statement refers of course to testing the grounding system. This specification seems to be extremely common for schools.

While there is absolutely nothing wrong with testing the grounding system, we are concerned when this is the *only* type of test required to be performed by an electrical testing firm. The greatest testing need at any jobsite is the ground fault system!

We draw this conclusion for several reasons.

1. Failure Rate: Having been in the electrical testing business for almost 20 years, we have tested many grounding systems and many ground fault systems. The number of grounding systems that we have failed is very small. The number of ground fault systems that we have failed is very large, in the range of 10-20%!



It is our responsibility in the electrical business to make sure that all people are as safe as possible in our buildings.

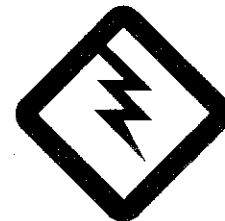
2. Safety: If the grounding system fails, the worst case results would normally be equipment malfunctions, equipment damage or possibly equipment failure. If a ground fault system is inoperable, the results could be catastrophic equipment damage, explosion, fire, and injury or even death.

3. Code: The National Electric Code does not require that the grounding system be performance tested. The only requirement for the grounding system is under article 250-84 which says that "a single electrode... that does not have a

resistance to ground of 25 ohms or less shall be augmented by one additional electrode...". No written results are required by the NEC and no where does the Code even use the word "test" in reference to the grounding system.

The NEC does require that the ground fault system be "performance tested when first installed on site" (article 230-95c). It also states that a written record "shall be made and made available to the authority having jurisdiction".

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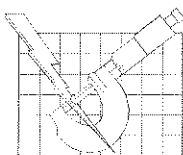


**News
we can
use!**

CONTEST

We need your help! We publish the Testing Times for your benefit, and our biggest challenge is to come up with articles and topics that we think will be interesting and educational for you. Our ideas usually come from ques-

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4. **Results:** The results of the grounding system test can be dubious. The results are dependent on the moisture content of the soil, the ability to completely isolate the grounding system (i.e., from the utility), and interference from surroundings. These factors and others can greatly effect the grounding system test results.

A ground fault system is much easier to test since the results are definitive. The ground fault system either works properly or it doesn't. A primary injection test will confirm whether the ground fault system is functioning properly.

5. **Cost:** The cost to have an electrical testing firm provide either one of these tests is about the same. Each test usually takes half a day or so depending on complexity.

Both systems are important, and ideally you would have both systems tested. However, if you only have one system professionally tested, use your testing dollars on your ground fault system!

(Contest, Continued from page 1)

tions we get or a situation that arises at a jobsite. This time we are asking for your input. Send us a suggestion for a topic that you would like to see covered. You will need to be specific, i.e., pose a question or describe a situation that you would like addressed. Don't just give a subject like "cable testing", but rather ask "Should I be testing my low voltage cables during my annual maintenance?"

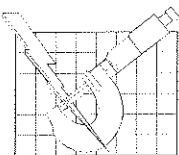
We will select up to (4) winners who each win a gift certificate for \$25.00 to Outback Steakhouse. Send your responses to Lyn Cosby by fax (you can write your answers below and fax this page) to (404) 299-3534 or reply by e-mail to Lcosby@hoodpd.com. The contest deadline is **June 1, 2000**. We look forward to your suggestions!

Note from the Editor

We inadvertently caused a lot of confusion in our last issue, Winter 2000. We sent our newsletter file to our printer electronically and there was a printing glitch that cut off the last sentence of the two articles in the newsletter. If you would like a corrected copy, fax this page to (404) 299-3534 or e-mail Lyn Cosby at Lcosby@hoodpd.com.

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