

# Testing Times

A newsletter for the electrical construction and maintenance industry

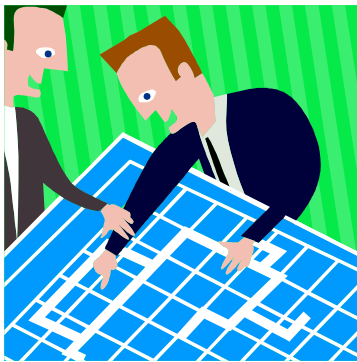
Volume 9 No. 1

## Short circuit and coordination studies :

### A necessity or just a case of gold-plating?

Money is tight these days. This is evident in all sorts of ways. Those of us in the construction industry realize it every day as we are asked to "value engineer" our jobs. This request comes from owners to design engineers and architects. The demand is passed along to the general contractor and his subcontractors who contact their vendors for relief. Everyone passes along the message "We've got to save some money on this job. What can we cut?"

Unfortunately, the items that often seem easiest to forgo can be costly in the long run. A good example is the short circuit and coordination study (SCCS) that is specified as part of a new construction project. One argument for removing this cost is that the study should be done as part of the design engineer's job. The truth is, although the design engineer must do a preliminary study in order to specify equipment for bidding purposes, his study is just that: a preliminary study. The final study is needed to verify the actual fault



**A study performed after the equipment has been selected is the only way to get proper settings for breakers and relays**

currents available based on the equipment selected and to determine if the equipment selected will be appropriate. In addition, the coordination portion of the study will determine the proper settings for circuit breakers, relays, etc. This information is not available to the design engineer because the short circuit and coordination requirements for a system are unique based on the equipment manufacturer that is chosen. This information is not known until after the bid process.

An analogy for these two studies is the manufacturers'

equipment submittal drawings and their final as-built drawings. There are often changes between the two versions and both are necessary. A good definition is to consider the design engineer's study a generic study while the final study is site specific for the equipment selected.

Another reason to consider the SCCS cost as expendable comes from a lack of knowledge about the important functions and benefits gained from an SCCS. The short circuit portion of the study verifies that the equipment selected and provided is the right equipment for the job. It confirms whether this equipment will be

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**News you can use!**

## 20 Year Anniversary

Hood-Patterson & Dewar is pleased to announce that 2002 is our 20th anniversary. We were founded in 1982 as a merger between the testing services of

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**HOOD - PATTERSON & DEWAR**

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(SCCS, Continued from page 1)

able to perform its intended function safely.

Another important function of an SCCS is to provide the maximum equipment coordination possible. Circuit breakers and relays are adjustable from minimum to maximum settings. A minimum setting means that the device trips or operates in the least amount of time possible. This provides for minimum equipment damage but also means the maximum amount of nuisance trips; devices tripping and shutting down your system when it's unnecessary or shutting down a larger portion of your facility than required. On the other hand, a maximum setting allows less frequent shutdowns and more time for downstream trips but also more time for equipment damage or personnel injury. An SCCS performed by a knowledgeable registered professional engineer determines where circuit breakers, relays, trip units, etc. need to be set in order to provide the maximum coordination between equipment protection and your electrical system reliability.

Breakers and relays are normally shipped at minimum settings. Without a coordination study, no one would have any idea where to set the breakers and relays. In this case, nuisance trips would be guaranteed. A short circuit and coordination study performed after the equipment has been selected is the only way to have the peace of mind that your system is safe and reliable. ❖

(Anniversary, Continued from page 1)

Mr. Richard Hood, P.E., and the need for an electrical testing division at Patterson and Dewar Engineers. P&D, our parent company, was incorporated in 1945 and is an electrical and civil engineering firm providing services for electric utilities, cooperatives and municipalities around the Southeast.

Hood-Patterson & Dewar shares the same building and internal support functions, including reception, as P&D. So when you call our office and we answer the phone "Patterson & Dewar Engineers" don't worry. We haven't changed our name. We are Hood-Patterson & Dewar, a leader in the electrical testing and commissioning business, and we're 20 years old! ❖

**Note from the Editor**

This issue's topic was suggested by Mr. Walter Henry, an engineer at the consulting firm of Nottingham, Brook and Pennington of Macon, GA. He will receive the \$25.00 gift certificate as promised. Thanks to all who have responded to our newsletter topic contest. We will keep your questions on file and if we use your suggestion, we will send you a gift certificate for \$25.00 and mention you in our newsletter. This contest is open-ended. If you have a topic suggestion, please fax this page with your topic to Lyn Cosby @ (404) 299-3534 or e-mail Lcosby@hoodpd.com.

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- Contest winner