# Facility Asset Management

### The Value of Apprenticeship Programs

he institutional environment in which facilities professionals find themselves requires high-quality trade skills. Despite the often repeated criticism that in-house staff are not as "cheap" as the local contractors that work on our homes, we are appreciated. The fact is, that given a choice, the faculty and staff of our institutions will typically chose to work with the in-house trade staff as opposed to outside contractors for project work. One of many reasons for this is the unique specialty of skill and understanding of trade staff coupled with their knowledge of the campus facilities. When lined up properly, this combination of skill and local knowledge affords the campus customers a high quality and efficient maintenance and project work force. The creation of these linked skills is achieved under the direction of an apprenticeship program.

As an industry, trade shops within facilities are varied in size and financial magnitude. Some of our peers have trade shops that are very large and can easily absorb the costs associated with an apprenticeship program. Others are small and can only support the development of one of the two forms of expertise at out disposallocal knowledge. Nevertheless, a scaled-down version of a program that meets the realities of the facilities department is fine as long as the intent is in place. The institution will benefit from a large program as well as a smaller one. Naturally, there are

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costs associated with the program that are directly related to its size. In the simplest sense, this is a "cost of doing business." A more detailed question is, what is the overhead or additional cost associated with the program?

There are direct costs that can be clearly charged to a maintenance project. Most apprentices can at least lift, move, secure, and certainly clean-up. Some work requires two people for safety. The hours, and hence cost associated with work performed by the apprentice are directly chargeable under these circumstances to the capital or maintenance budgets. This is the easy part and is largely transparent to the budget office. However, there are blocks of time that are devoted to training or tutelage. Sometimes, the new apprentices are simply third wheels placed on a work team to observe. This is one of the most obvious forms of overhead associated with an apprenticeship program. The cost for this time is ultimately absorbed by the plant department and is handled in one of two ways. Most common is the addition of these costs to the calculation of the skill trade chargeback rates. In other words, each hour of work charged to the maintenance or project account has some small slice attributed to the one or more apprentice overhead activities. Once again, it can be argued that this is the cost of doing business in our institutional world. Less typical, but sometimes used, is a cost recovery account funded by the institution. This account is debited with the nonwrench time associated with the program. In this way, the actual hourly charges are not impacted, but the institution as a whole pays. Either option is fine, but requires an acceptance by the finance office on the value and corresponding cost associated with an apprenticeship program.

Some medium to large institutions have placed enough emphasis and resources into their apprenticeship program to necessitate a coordinator position. The logistics of assigning and reassigning trade apprentices on multiple-type projects within the construction and maintenance shops makes a case for this. Clearly a good program has a structured and wellplanned sequence of training experiences for the apprentices. Depending on the number of apprentices, the logistics can take some work but are necessary to ensure the completeness and well-rounded nature of the training experience.

At the University of Arkansas for example, Ron Edwards, associate director of operations and maintenance, sees the need to transition apprentices into both construction services and zone maintenance. As Edwards sees it, the construction projects are a good way to get apprentices exposed to their trade in a setting that allows them to both participate and observe. The focus is on the trade skill. At some point, candidates are then rotated into maintenance zones. In this setting, the apprentices are exposed to the maintenance variation of the particular trade and most

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importantly, the new aspect of customer service. In addition, the apprentices are educated in the second expertise required of a campus skilled tradesperson—local campus knowledge. They learn the unique attributes of the campus facilities. A full rotation from capital projects into zone maintenance overseen by journeyman mentors affords a robust training experience. Too bad, there are still tests at the end!

At the University of Arkansas and other institutions, the question of supply chain management is hot. This is the MBA way to describe the loading of the apprenticeship program so that it produces graduates at a rate that is efficiently absorbed by the trade shops in maintenance and projects. Clearly, too few graduates create skill trade shortages and too many inflates costs. Most of our peers use the "gut feel" approach to sizing and loading the programs. While this will work, it is not easy to impress the vice president for business affairs with this policy. A more empirical, yet basic, approach is to create a table for estimating the output of the supply chain and the demand of the shops. This table would show the apprenticeship process and the stages identified with it-associated durations, drop-out rates, and trade types. Each apprentice is an entry to the table and percolates from one stage to the next and is tracked. We make assumptions about variables like drop-out rates until we have real data from an actual year. Spelling out the most important stages of apprenticeship with the relevant variables gives us a basic supply chain model. It gets tweaked each year as

we learn. On the other side of the equation is the demand for skilled trades. This too is not done by "gut feel" under best practices. Instead, projects and maintenance workload is defined in terms of full-time equivalent skilled trades. Growth or reduction of workload is projected for up to five years. Experiential and predicted attrition is factored into the demand side load. Once again, a simple table or model of skilled-trade demand is compiled and published. These two tables form a mathematical and highly transparent justification for personnel decisions (a.k.a. costs) associated with the apprenticeship program. An added benefit is that the business office can check the math and therefore feel comfortable with our decisions.

The most valuable benefit of an apprenticeship program is the enhancement of "esprit de corps." In this competitive hiring environment, institutions now struggle to find good staff. Effective apprenticeship programs offer new skills and secure employment to good people. Even better is the cohesiveness and sense of team created by these programs. We have all seen trade shops in our industry where there is a profound sense of pride and achievement. There is an elevated professional standard of care coupled with an identity closely associated with the campus. In the final analysis, there are three legs on the apprenticeship stool-professional trade skills, local knowledge of the campus facilities, and loyalty to the institution. 🚊

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