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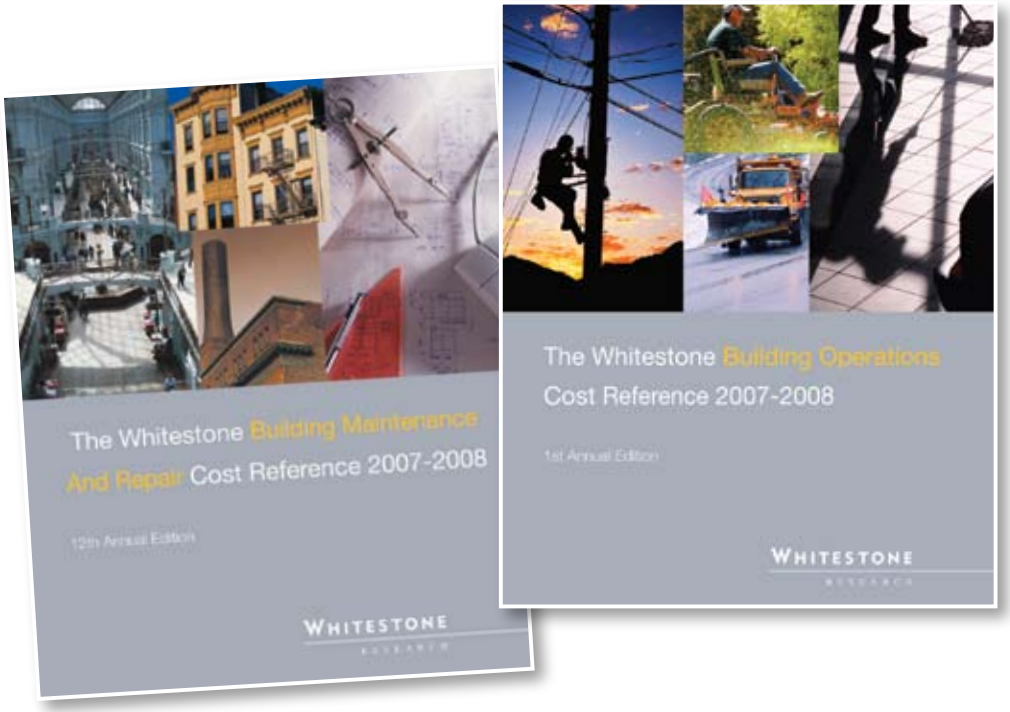
We are in a data intensive business. Whether tracking the data of work/service requests, employee time, maintenance parts, or paint colors—we are dependent on a great deal of supporting information. One key provider of facility data is Whitestone Research. Three Whitestone publications are reviewed here. Due to their overlapping nature, all three are reviewed as one.



THE WHITESTONE BUILDING MAINTENANCE AND REPAIR COST REFERENCE 2007-2008, 12TH ED.

385 pages, softcover, $295.

THE WHITESTONE BUILDING OPERATIONS COST REFERENCE 2007-2008

231 pages, softcover, $199.

MARS 7.0

CD and Users Guide, $7,000.
Whitestone Research, Santa Barbara, CA, 2007.

Whitestone's *Maintenance and Repair Cost Reference* is the primary reference guide for assembling maintenance and repair information into a budget for trades work. The data used is a compilation of several information resources familiar to higher education facility officers. Whitestone data uses real examples with key details—rather than a generic, less informative, square-foot format.

Whitestone makes extensive use of data available from federal agencies, including foundation material developed in the 1980's by the Army's Civil Engineering Research Laboratory in Champaign, Illinois and reported through several venues, including an APPA conference. The data elements have been assembled into several model facilities that provide examples of maintenance and repair costs such as: annual, preventive maintenance, major repairs, and capital renewal forming a 50-year life-cycle cost profile. Behind these examples are detailed maintenance costs based on time, material, equipment, and repair frequencies. Adjustments can be made to the data to resolve regional differences in wages and material costs.

APPA MEMBERS WILL RECOGNIZE SEVERAL DESCRIPTORS FOR OPERATIONAL SERVICES AND BE ABLE TO TIE THEM TO APPA'S STAFFING GUIDELINES.

My copy of the 1996 reference had 24 buildings modeled with data to make adjustments for 64 cities and over 250 components. The 12th edition reflects the growth of Whitestone's database, with increases in the number of models (56), cities (210), and components (1,000+). In addition, there is important life-cycle data for heating and cooling equipment to make adjustments for 10 climate zones.

All components are organized following ASTM Uniformat II, from exterior closure (B20) through site electrical utilities (G40). There is an extensive list of heating and cooling components. One can start with a model facility; add and subtract components to match specific conditions; and develop a budget for preventive maintenance and capital renewal. Sounds easy, but the process

to arrive at a detailed budget can get almost as complicated as designing the actual facility.

The Building Operations Cost Reference closes the gap by addressing the operating costs of custodial, utilities, grounds, security, and seven other areas of service necessary when a facility is occupied and used. While preventive maintenance and capital renewal are important and significant costs, they only address the needs of the facility, not the occupants.

Similar to the *Maintenance Reference*, this manual builds on the 56 model facilities, identifies the kinds of service levels provided, and identifies the costs to provide those services. APPA members will recognize several descriptors for operational services and be able to tie them to APPA's staffing guidelines.

WHETHER IT INVOLVES TRACKING THE DATA OF WORK/SERVICE REQUESTS, EMPLOYEE TIME, MAINTENANCE PARTS, OR PAINT COLORS—WE ARE DEPENDENT ON A GREAT DEAL OF SUPPORTING INFORMATION.

It is possible to compare the service levels with APPA service levels and then compare costs.

There are three service level alternatives provided (high, medium, and low) which are tied to facility use, rather than service delivery. "High" describes a facility with heavy use, greater than 80 hours per week; "medium" for facilities used between 40 and 80 hours per week; and "low" for a facility used less than 40 hours per week. This makes sense for utilities, security, and telecom, but less so for grounds, management, and other operating costs. One area of particular concern was security which described basic (a fourth level, below low) security as having electronic locks. Some APPA members may find great value in electronic locks but at a higher maintenance cost than suggested. Regardless, these are helpful metrics that can be applied to a higher education setting.

While not a competitor to APPA's annual Facilities Performance Indicators

(FPI) survey, it is possible that the cost of this manual may be reasonable for a budget officer wanting to verify a facility officer's projections. The data is good but in the wrong hands, it can be easily misinterpreted.

The software, *MARS 7.0*, used to produce the two aforementioned references can be purchased and used to facilitate customized facility information and to produce budget information for specific facilities or campuses. This level of added detail and customization of building models is great for a large facility and for facility officers in need of support without the cost of consulting fees.

MARS is a custom database built on an MS Access foundation. There is no need to have an MS Access license prior to installation. All 56 building types appearing in the *Maintenance Cost Reference* are available and can be edited to reflect the exact size and component list. Components and maintenance tasks, including life-cycle and replacement costs, can be modified or added and applied to any facility. So, it is possible to insert specific manufacturer maintenance recommendations and apply them to buildings. Reports provide the usual information, individual building costs over a 50-year life, aggregate building costs, and normalized costs ($/sf), to name a few.

The user's guide provides a great deal of helpful information. User software is often complex and not always intuitive. However, the manual identified at least two helpful features that weren't available in the package—uploading building data and uploading building deficiencies. These features are apparently available for an additional cost.

This is no small software package. I used a Dell D430 with a duo core processor, but some operations took a minute or more to process. One should not use this software and expect instant results.

While I still value the data Whitestone provides through the 56 building models, I think I'll stick with the annual paper copy of the data rather than use *MARS*. And, I'll use the *Operational Costs* with caution but to my advantage.

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