AFC Newsletter

OCCURRENCE

March 2003

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Presidents Message

If you had joined our Fall 2002 meeting in Toronto, you would have heard our members share their experiences with a wide variety of challenges. From toxic mold to difficult labor relations, skyrocketing energy costs to keeping up with new codes, master planning to more efficient housekeeping, the span of topics discussed and creative ideas was truly impressive. This meeting again demonstrated to me the reason the Academic Facilities Council is so valuable. Our members are always willing to offer their ideas and experiences. There is always something to learn, even on a topic on which you thought you did not have an interest. Coupled with the excellent presentations and tours, this was a very valuable meeting.

More of the same is planned for our spring meeting in Tempe, Arizona. Many valuable educational sessions and facility tours are planned. Additionally, there will be a discussion of the future of the AFC. Council Officers have been discussing the need to do strategic planning, to give the Council a clearer direction. So this is an opportunity for our members to bring their ideas and influence the future of their Council.

Frank Coppinger
President Academic Facilities Council

Spring Conference
Arizona State University-Tempe, Arizona
April 4-6, 2003

Plan now to attend the annual spring meeting and conference. Two full days of interesting educational sessions and exciting tours are planned. There will also be plenty of opportunities to network with Council members with similar interests at dinners, which are included in the conference registration. Programs on construction claims, LEED certification, business etiquette, ergonomics for children and more will be presented. Tours are planned of Arizona State campus, Bank One Stadium-home of the Diamondbacks, Taliesin West-a Frank Lloyd Wright house. All this for only$150! So follow this link (http://smpa.uc.edu/afc/conferences_arizona_state_2003.html) to the registration form and join us in Tempe this spring.

Why do a Facility Condition Analysis?

An FCA is an essential tool to be used in the proper management of your physical plant. This is true regardless of whether you choose to conduct an FCA in-house or out-source the effort. The first question to be answered is "why should I conduct an FCA." This is easy to answer. The only way to properly manage your facilities assets in a pro-active manner (as opposed to reactive maintenance) is to have a solid knowledge of the deficiencies that must be corrected. In almost all cases, a physical plant department already knows what is wrong with their facilities. This knowledge, however, is spread out among many different individuals, and in many cases, is only maintained in mental databases. The lack of a centralized repository of facilities deficiencies information all too often results in renovation / repair projects, which omit critical deficiencies. These omissions must later be corrected, usually at significantly higher costs. The creation and maintenance of a centralized database of deficiencies is the number one goal of an FCA effort. When all of the deficiencies have been consolidated, it is far more difficult to omit critical items from the design of on-going renovation projects.

The process of the FCA also results in the generation of project scopes and budget estimates, which greatly improve the accuracy of forecasting future capital renewal and maintenance needs. Without the centralized (and complete) deficiency database, only projects planned for the immediate future typically have any supporting cost and / or prioritization information. The lack of detailed information on longer-range projects makes forecasting maintenance budget needs extremely difficult. This difficulty in forecasting usually results in future budget requirements being based on historical expenditures as opposed to what is actually needed. This can have disastrous effects. As an example, if the majority of your facilities were built within a relatively narrow window of time, your capital needs will be relatively low for the first twenty years or so. As the buildings age, (and in this example, they are all aging together), you will see a marked increase in funding needs at around the twenty to twenty-five year point. Capital and major maintenance budgets that have been based on historical project expenditures will suddenly become grossly inadequate. Maintenance of a long-term database with project scopes and budget estimates applied to the deficiencies will prevent such surprises (note: it will prevent the surprise, but not prevent the capital funding need).

The other main benefit of maintaining a consolidated, complete deficiency database is that it allows you to more effectively prioritize your work and target funding against critical needs. Without a solid, defensible base of information, the typical tendency in facilities management is to "apply the grease to the squeaky wheel." Put another way, the customers with the most influence typically receive more than their fair share of the work output of the facilities department. If you know the overall condition of each facility, and have good descriptions of the deficiencies that exist in each, you can spend precious resources in a more productive manner. Knowing that the magnitude of total renovation needs is such that replacement of a building is recommended (and likely), you can successfully defer major maintenance initiatives in that building which might otherwise be deemed critical. Likewise, you can realize significant cost savings and reduce disruption to occupants by performing more of the necessary maintenance items during major renovation. Consolidation of the known deficiencies into one larger renovation effort will not only provide you with significant economies of scale, but will also prevent having to come back to the same building time and again. This will not only improve your cost effectiveness, but will also increase your stature among your customers.

The last main virtue of conducting an FCA is the ability to perform relative prioritization among all facilities on your campus. As previously mentioned, projects are typically planned and executed using the "squeaky wheel" formula. In conducting a campus-wide FCA, you are afforded the opportunity to have all of your deficiencies objectively prioritized. This is possible since you are identifying all of the deficiencies at the

same time, and using the same prioritization scheme to rank projects. Hence, the most critical roof on your campus in need of replacement will have a higher priority than the roof that is in better condition, but is on a higher profile structure, with a higher profile occupant. Obviously, the nature of the building and occupant do come into play when prioritizing work, but the maintenance of an objective, centralized database of facility deficiencies eases your task of justifying which work is truly more critical.

Daniel Harrison
Vice President
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State of Indoor Air Quality – Neil Carlson, MS CIH U of MN DEHS

Indoor air quality problems are more appropriately labeled indoors environmental quality problems. These problems are present in all structures irrespective of building age or construction.

There are numerous problems with new construction. The dust and odors from the construction project often impact occupants in adjacent buildings or occupants in the same building. Well-designed ventilation control systems can not work effectively if the pressure sensors are placed in turbulent areas of the ventilation ducts such as elbows. Assumptions by mechanical engineers about static pressure losses in ducts are often off by a wide margin. At a recent University of Minnesota installation, one exhaust fan was to be used for general and fume hood exhaust and the second fan was to be used as a back up when maintenance was done on the other fan. I actuality, both fans needed to be operated simultaneously to provide sufficient exhaust airflow.

Beware of falling in love with expensive technology. The VAV exhaust systems are often touted as energy saving devices with higher up front costs. In smaller applications the conventional constant volume exhausts may be as cost effective. For example: the minimum exhaust required for a lab was six air changes per hour. General exhaust was needed in addition to the fume hood to provide the minimum number of air changes per hour. Elimination of part of the general exhaust allowed the fume hood to provide the air changes. The VAV fume hood exhaust was eliminated in favor of a conventional exhaust with substantial savings up front and no difference in energy costs.

Litigation on indoor air is an increasing liability concern for landlords, architects, mechanical engineers and insurance companies. There will continue to be tension between the need for affordable housing and the indoor air problems present with that housing. As an example: one tenant was repeatedly bleaching their walls to stop fungal growth. There were no exhaust fans for the bathroom or kitchen. The bathroom windows had taken on too much moisture and were unable to be opened. The occupants had severe respiratory problems and a poor credit history and were afraid to break their lease because they could not find another modestly priced home for sale or safe place to rent.

Homeowner and occupant partial knowledge of humidity issues can also be a problem. This is also complicated by cultural differences. In one case, recent Southeast Asian immigrants placed soil on an upper floor and cultivated plants inside the house. The water leaking on the tenants below brought this to the landlord's attention. Another homeowner humidified her mobile home in the winter to the normal level listed on a humidity gauge. The 50% relative humidity in the winter caused mushrooms to grow out of her ceiling from moisture condensing off the cold exterior surfaces of her roof.
Architectural problems often contribute to indoor air problems. Placing air intakes close to loading docks or bus stops will bring diesel odors into the building. Newer designs will need to consider reducing accessibility for bioterrorism concerns. Planters on roofs make the roof membrane vulnerable to numerous leaks. The roof planters on two large University of Minnesota buildings either have been or are in the process of being removed.

Cuts to the custodial services, high staff turnover, low unemployment rates, second and third shift work, poor supervision and contracts that protect under performing employees can lead to indoor air problems.

Inadequate response to floods often results in occupant aggravation of occupant allergies and asthma symptoms. This is a typical scenario. The carpet is extracted using a wet vacuum. None of the furniture on the carpet is moved. The gypsum board walls are not replaced. The chair mat is put back on the carpet an hour after the carpet is shampooed. One week later there are rust stains on the carpet under the file cabinet, the carpet under the chair mat has an off putting smell and there is healthy mold growth behind the gypsum board wall. A case of occupational asthma resulted from incomplete abatement of fungal contamination from a flood three years prior.

Indoor air quality will continue to provide full employment for consultants because the sources for the

problem are multiple and out of the range of expertise for any one person. Building construction, building maintenance, occupant activities, outside contractor activities, power failures, pipe leaks because a smoker does not adequately shut an outside stairwell door.

Wishful thinking about hydrology in buildings with significant underground components leads to problems with fungal growth. The water will degrade the building envelope, introduce contaminated soil, encourage fungal growth on the wet walls, wet carpet and cold carpet. The building and grounds crew may also increase foundation water problems by removing downspouts that are in the way and thoroughly watering shrubs adjacent to a building after a significant weekend rain.

Assumptions prove to be invariably wrong. The thermostat actually dose not control the temperature in the space, the outside air intake screen is not routinely inspected and plugged, the air dampers do not operate appropriately, no outside air was provided to the space. The maintenance worker wires the outside intake damper shut to improve energy conservation. The maintenance worker does not change the air filters and the filters are collapsed. The HEPA filters are inappropriately installed in a hospital and the particle counts are the same upstream and downstream of the filters.

Unintended consequences for actions create further problems. For example: increasing the amount of outside air to reduce carbon dioxide levels causes the loss of humidity control. Buying cheaper filters reduces filter cost but increases custodial cost and reduces the efficiency of the cooling and heating coils.

Treasurer's Report:
At the end of December the AFC balance was:
$22,909

IFMA Academic Facilities Council

2003 Calendar
All times Eastern

April 1	Exec Comm Teleconference 1:30 PM
April 5-7	Spring Conference-Arizona State University-Tempe, Arizona
May 6	Exec Comm Teleconference 1:30 PM
June 3	Exec Comm Teleconference 1:30 PM
July 1	Exec Comm Teleconference 1:30 PM
August 5	Exec Comm Teleconference 1:30 PM
August 8	Council Recertification Application Due
September 2	Exec Comm Teleconference 1:30 PM
October 7	Exec Comm Teleconference 1:30 PM
October 16-17	Fall Conference-Dates Tenatative - Dallas, Texas
October 19-21	World Workplace-Dallas, Texas
October 22	Council Officers Workshop-Dallas, Texas
November 4	Exec Comm Teleconference 1:30 PM
December 2	Exec Comm Teleconference 1:30 PM

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