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DON'T MISS

the hand-off

PLANNING FOR SUCCESSFUL TRANSITION FROM CONSTRUCTION TO OPERATIONS

BY JOHN RIMER

Consider this: A building is designed, constructed and turned over to the facilities team, often without adequate testing and with training that does not fully prepare engineers, defines only minimal operating parameters and lacks comprehensive documentation on how to operate and maintain the facility as a large, complex building consisting of a wide array of interdependent systems. Yet, facility departments are put at the frontlines to take on the barrage of occupant complaints and system errors with an insufficient amount of resources. What's missing here?

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Shouldn't operations and maintenance merit just as much attention as the design and construction phases? Think about all that goes into the design of a building and the various stages — defining the owner's requirements, multiple design sets and reviews, stacking plans, architectural renderings, specifications, and ultimately, construction documents. That is just design. The intent here is not to minimize all the efforts that architects and engineers put into the design of a facility; rather, it is to petition all involved parties to allow similar consideration for those that will operate and maintain the building for the foreseeable future, which is measured in decades, not months.

The reality is that most facility departments are often kept more than an arm's length from the design and construction phases and are brought in too late into the project to adequately prepare for a successful hand-off. The barely finished building is tossed over the fence to the facility department, with multiple contractors still tying up loose ends, furniture being set up, and occupants moving in because the deadline has been overshot. Not to mention, the building is still being commissioned, if commissioned at all, operations and maintenance manuals have not yet been received, and hopes to see accurate as-builts in your lifetime are quickly waning.

All the while, you and your team scramble around trying to learn the building, hanging dry erase boards, moving boxes and resolving occupant complaints as they get settled into their new digs. In all of the hustle and bustle, you do not get the opportunity to load the equipment information into your maintenance management system, preventive maintenance does not get scheduled, operating procedures are not written and service contracts are not put in place. It is a brand new building and you are already starting off behind.

On the flip side, thankfully, facility professionals are making great strides in getting more involved with projects and invited to the decision table. Even with such progress, there is still much more that can and should be done to ensure the facilities department is equipped and prepared to efficiently and effectively operate and maintain the facility for the unforeseeable future. In this article, we will discuss some of the steps that can be taken to help bridge that gap and prepare facilities for a successful transition from construction to operations.

Get to the table

The first step is to build relationships and earn a place in the initial design discussions. Granted, you should not have to earn such, but that is reality. The value of your expertise and that of your team's needs to be sold up and down the management chain. Consider the collective knowledge your team of experts can provide to the conversation — you just need the chance to do so. Now, once at the table, the objective is to be seen as that expert, a trusted advisor, and to not use the opportunity to enlighten the architect or engineer of the deficiencies from previous projects. You are there to build bridges, not burn them, so that you get invited back to the table. (See the January/February 2016 issue of FMJ to learn more about selling the value of facilities.)

Budget for success

In addition to providing guidance regarding design decisions, you should assemble and submit for approval an operating budget, staffing plan and startup costs. The operating budget should include personnel, service contracts, custodial, grounds, utilities, training and a contingency budget. Construction projects carry a contingency budget to cover the unknowns; facilities should do the same for the first year.

The staffing plan and hiring timeline are critically important. Ideally, those that will operate the building are on-board during testing and commissioning, if not sooner. Remember to allow for lead-time in finding and hiring personnel, especially the higher skill levels. Startup costs should account for initial staff training, computerized maintenance management system (CMMS) implementation (if starting from scratch), necessary tools and critical spare parts. Many of these items are discussed in the remainder of this article.

Commissioning

Commissioning (Cx) can make for a strong ally in your endeavors. A good commissioning agent (CxA) can bring additional insight to the project and be of great assistance in preparing the facilities team for assuming ownership of the building and operations thereafter. Participating in the commissioning tests provides an invaluable learning opportunity for staff to become familiar with the building, sequence of operations and various failure scenarios. Testing procedures can be used again at a later date by facility staff to confirm continued performance through recommissioning (RCx).

Advocate for the hiring of a good, qualified CxA, as it is an investment in the long-term sustainability, operations and life cycle cost of the facility. Do not allow Cx to be relegated to the "value engineering" pile, as something that was not budgeted for or labeled unaffordable — your organization cannot afford to not do commissioning. (To learn more about the value and process of commissioning, read "Lowering Utility Costs and Increasing Performance – Commissioning and Retro-Commissioning" in the November/December 2015 issue of FMJ.)

Information management

Along with a new building comes drawings, operations and maintenance manuals, test reports, panel schedules, specifications, etc. that provide information needed to operate and maintain the facility. This moment in the life cycle of a building affords your greatest opportunity for having accurate documentation and starting off on the right foot, so take advantage of it. Do not put yourself in the situation that most find themselves — running a building with outdated drawings and panel schedules. These design and construction documents should be received electronically and stored as such in the maintenance management system.

A document management protocol should be established to ensure that related documents are updated as changes to the facility are made (e.g. renovations, build-outs, equipment replacements and new electrical drops). Equipment information and specifications should be exportable from the schedules in the drawings and imported into the maintenance management system, so that the data does not have to be manually entered. The equipment schedules need to be generated by the design firm in an exportable format. Such electronic document requirements can be noted in the contract, so that they are supplied by the design and construction firms within a specified timeframe.

Think critically

Business critical areas, departments and functions should be identified along with the systems and equipment that supports those spaces. Discuss with management and affected department heads their priority areas/functions and their expectations regarding uptime, reliability and maintenance windows. It is important to understand these requirements upfront, as design changes may be necessary. A criticality can be assigned to those spaces and equipment setting their priority. Criticality will be used in determining maintenance strategies, drafting operating procedures and prioritizing work orders.

Get ready to run

Locations and equipment need to be entered into the CMMS, along with relevant data such as manufacturer, model, size/capacity and criticality. Warranty information, including expiration, contractor contacts and an electronic copy of the

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warranty documentation, should be entered into the CMMS. Additionally, a consistent, intelligent nomenclature should be employed that concisely describes the location, system and equipment type, area served and unique identification number. Ideally, such nomenclature is used in the design and construction documents so that it carries through the life cycle of the facility. Spare parts should be identified and ordered as necessary, including critical spares.

Maintain for life

To realize the expected useful life of assets and to ensure optimum building performance, the appropriate maintenance strategies must be employed. Asset criticality, replacement cost and condition will help to determine which maintenance to assign: run-to-fail, preventive, predictive, condition-based or some maintenance combination thereof. Once the strategy is determined, the maintenance must be scheduled in the CMMS. It is important to begin immediately so that warranty conditions are met. Make sure contractors are completing the required maintenance prior to you assuming ownership of the system, so that warranties are not voided or long-term performance hindered.

Second, those who will perform the prescribed maintenance must be identified, including the necessary training, tools and certifications. Evaluate if such maintenance can be performed in-house or if an outside service provider is required. If outsourcing, a provider should be selected and service contracts negotiated and approved prior to assuming ownership.

Prep for operation

Commissioning documents, manufacturer manuals and contractor training can be used to draft standard operating procedures (SOP), maintenance operating procedures (MOP) and emergency operating procedures (EOP). Typically, SOPs are more administrative in nature, while MOPs script system-specific tasks, such as resetting a piece of equipment, putting it in bypass or returning to normal operations. EOPs tend to be more streamlined, step-by-step documents that are easy to follow, as they will be performed in emergent situations, such as loss of utility power and system failure. These documents should be written and tested during the commissioning process, before spaces are occupied.

The aforementioned procedures are great training tools for current and future staff. Initial training should also occur during commissioning and completion of such documents. Procedures should be reviewed annually to ensure accuracy and applicability, and staff should retrain on the documents each year thereafter.

Save for the future

As discussed in the May/June 2016 issue of FMJ, a capital plan should be established that forecasts the replacement of assets as they reach the end of their useful life. The install date, costs and anticipated life expectancy should be entered into the CMMS or some other database. The time to start saving and planning for replacement is when the equipment is new, so you can get and stay ahead to avoid the deferred maintenance pit.

CONCLUSION

Now, here's the trick… all of the above should ideally be completed prior to assuming ownership of the space or systems. While this may seem unrealistic and far-fetched, we should be continually driving to get ahead of the curve, instead of always being behind, scrambling to catch up.

The key is to assemble a plan that encompasses the above areas. Incorporate that plan and its implementation into the construction schedule or maintain your own schedule that you share at construction meetings. Do not let management or the project team lose sight of all the moving parts and action items you need to resolve prior to substantial completion and before folks start moving in and the building goes live. **FMJ**

John Rimer, CFM, is president of FM360 Consulting and has 18 years' facility management experience in a variety of capacities and industries. He uses his breadth of knowledge and diverse expertise to provide a comprehensive perspective to his clients and students.

Rimer is very active in the facility management community and an avid proponent of education. As such, he is an IFMA Qualified Instructor and an approved Building Operator Certification instructor.