



Operations and Maintenance

The way you must operate and maintain your building flows naturally from decisions you made in the design phase and which were executed in the construction phase.

It is up to your architect and engineering team to insure that the construction documents spell out your intentions in great detail and then leave you with the post construction tools to keep your building running smoothly.

For example, the architect's and engineer's construction bid documents include a Specifications manual with a dedicated chapter for each material, construction element and piece of equipment that is part of your building project. In any given chapter, the specification will dictate the terms of material and product warranties and guarantees and require that the contractor submit these along with specific operating and maintenance instructions. Requirements for in-service training of your maintenance staff in operating equipment/systems and maintaining materials and finishes are also noted in applicable chapters of the Specification manual. The contractor is required by the Specifications to organize and bind these documents into a series of "Owner's Manuals" which are presented to the owner when the project is substantially complete. This becomes your road map for properly operating and maintaining your building.

A good set of construction Bid documents will also require that the contractor produce a set of as-built drawings for all building trades. This is an invaluable tool in your operations and maintenance tool box. In parallel with the as-built drawings, the contractor should also be required to provide the owner with a numeric valve chart/schedule allowing your staff to easily locate and maintain these appurtenances which were physically tagged by the contractor during construction. The architect's drawings should also insure that all valves, cleanouts and similar items are accessible for maintenance and/or have access doors. Good practice also requires that a separate drawing and schedule of fire and fire/smoke dampers be prepared by the contractor for submission to the owner. This will make it easier to undertake and track code required "exercising" of those dampers at code required time intervals.

If your budget allows, ask your architect to specify a Building Management System (BMS). A Building Management System or a Building Automation System (BAS) is a computer-based control system installed in buildings that controls and monitors the building's mechanical and electrical equipment such as ventilation, lighting, power systems, fire systems, and security systems. A BMS consists of software and hardware.

BMS systems are a critical component to managing energy demand. In addition to controlling the building's internal environment, BMS systems are sometimes linked to access control (turnstiles and access doors controlling who is allowed access and egress to the building) or other security systems such as closed-circuit television (CCTV) and motion detectors. Fire alarm systems and elevators are also sometimes linked to a BMS, for monitoring. BMS Systems allow you to monitor your building's environment remotely on a tablet or smart phone and also feature computerized preventive maintenance scheduling.





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Requiring the color coding and tagging of different piped systems is pretty standard today as is the code mandate color coding of life safety sprinkler and stand pipe systems.

Keying schedules and the corresponding tagging of master and change keys are also pretty standard, but your architect can make your maintenance life easier by specifying interchangeable cylinder cores which can be used in the keyways of several major lockset manufacturers.

It is also important that your architect specify that the contractor provide sufficient quantities of attic stock on high-wear finish materials such as flooring, since manufacturer's are tending to discontinue their products with much greater frequency.



Giving an owner the flexibility to replace expensive and or poor performing vendors can also be “specified into the job” by the architect. For example, specifying a fire alarm system with (non-proprietary) “open architecture” can avoid an owner being married to a proprietary vendor.

So whether you realize it or not, every design decision you make is also a construction and maintenance decision. With the “right” professional and construction team in place, you will be able to understand all of your options and their implications, giving you a building that looks beautiful, runs smoothly and wears well.