

Critical first steps to optimising buildings for low-occupancy

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The Covid-19 pandemic has led to thousands of empty buildings as offices, malls and other commercial spaces have shut down. Even as some facilities, including malls, begin to reopen, they are operating at drastically reduced occupancy and are likely to do so for some time yet. In the UAE, all malls must maintain an occupancy ceiling of 30% of the mall, retail outlet or restaurant's common and gross leasable area.



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Many other buildings, including hotels and offices, are not likely to return to normal operations for a considerable length of time. Occupancy levels in Dubai's hotels dropped by almost 30% year-on-year for the first week of March amid coronavirus concerns according to data and analytics company STR. For building managers, facilities managers, owners and operators, having buildings at low or zero occupancy for extended periods of time means a significant change in operating requirements and a need to adjust building systems accordingly.

Plan for operational optimisation

To secure a successful restart, now is the time to plan for operational optimisation, to validate your property's business model and to adjust the operating concept for long-term value creation potential. From repurposing a property to adapting new strategies and approaches to secure a strong comeback for your business assets once the industry restarts, UAE stakeholders are considering a multitude of things from operational changes to strict hygiene measures in line with the government's efforts.

The process of switching to low occupancy operations should start with a checklist of all your major HVAC and building automation assets, including chillers, air handlers, boilers, fan coils, packaged terminal air conditioners, and rooftop units. You need to know which of these key components are in operation, drawing energy and managing environmental conditions.



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Critical first steps

- Before you get started on adjusting systems, it's very important to document any changes that are made to systems and parameters. The typical low-occupancy set points that are used during weekends can be exceeded when facilities are unoccupied for months, so setpoints for temperature can move more drastically.
- You should also factor in the changes to BTU load. HVAC systems are calibrated to a certain estimated BTU load for typical occupancy, but that will change with low occupancy.
- Take advantage of variable speed drives (VSDs). Your building's systems are designed for near full capacity, not low

capacity. With a fixed speed drive, your energy use will remain constant regardless of output.

- Any reduced-occupancy plan also needs to allow for remaining staff, so you should consider the essential areas that they still need to occupy and ensure staff are still going to be comfortable.
- During low occupancy, venting out particulates and maintaining proper carbon dioxide dilution is still necessary. Overall, the idea is to ease off temperature controls to boost energy efficiency. You can consult your building automation service partner for optimal settings.
- Humidity still needs to be monitored as mould and moisture can become a problem if indoor dew points are not properly maintained.
- For IT systems, it is important to maintain the pre-defined setpoints for temperature to prevent any overheating. Most electrical rooms, however, are actually rated for outdoor operations, meaning higher temperatures can be safely maintained, which can be another source of energy saving.
- Commercial kitchens and similar areas, which have equipment including exhaust fans and make-up fans, should be focus areas. Fans, freezers and refrigerators that are often set to run 24/7 can be shut down entirely if the kitchen facilities are not in operation.
- Water systems should not be shut off, and it is important to make sure that you maintain minimum levels of water flow through the system. Stagnant water creates a health risk in domestic systems and can lead to higher-than-normal corrosion in non-potable systems. Boilers and hot water systems can be reduced or shut down, after taking specialist advice.
- Finally, when making all these changes, it is important to monitor the building, and to keep documenting settings and processes. Regular monitoring of the facility will help to ensure that changes are not causing any problems such as moisture or hotspots, and to ensure that the changes are having the desired effect.

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