Maintenance & Support Services

Optimised Availability

Data Centre Audit Service Schedule

Workspace Technology Limited

Data Centre Solutions Expertly Engineered

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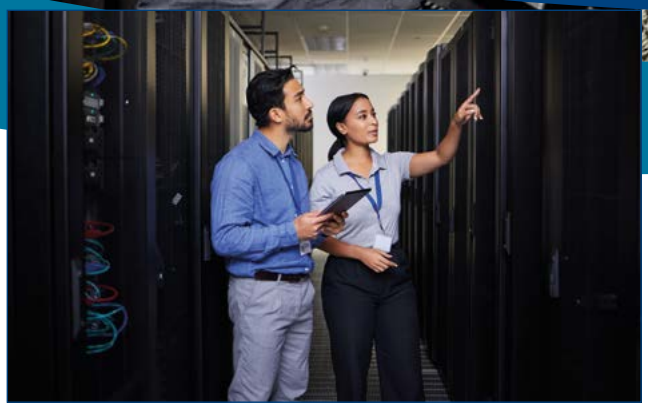

Consult...
Optimisation, Audit and Survey Services

Data Centre Services

Workspace Technology provides data centre operators unprecedented levels of expert help 24/7, anywhere in the UK. We deliver planned preventative maintenance and emergency callout on a wide range of AC, chilled water, UPS, generator, fire suppression and associated infrastructure. In order to complement onsite maintenance services Workspace Technology provides a range of assessments, surveys, audits and services specifically designed to help improve data centre performance and reduce operation costs for our clients.

Data Centre Audit Service Overview

Data Centre environments house critical processes that must remain operational. Without these critical processes, there would be a significant impact on the success of the company. It is important to remember that it is often significantly less expensive to invest in mitigating a risk of downtime, than to recover from the event after it occurs.

Workspace Technology's Data Centre Audit Service's help customers focus on the fulfilment of data centre 'Best Practice'. Implementation of recommendations detailed within a Data Centre Audit will help increase reliability, reduces human error and deliver clients with the best value reducing total cost of ownership through reduced capital, operating and energy costs.

Recommendations and guidance outlined within the Data Centre Audit service are produced inline with the following standards:

- European Commissions Code of Conduct for Data Centre Energy Efficiency 'Best Practice' Guide.
- TIA-942 Telecommunications Infrastructure Standard for Data Centres.
- Green Grid Recommendations.
- ASHRAE Guidlines.

Audit Report Schedule of Works

Frequency - Yearly (minimum recommended frequency)

The Engineer undertaking the audit will complete a detailed report document. The detailed audit report will review each item and make comments in relation to findings and produce detailed recommendations where issues are identified and improvements can be made.

Item	Service Detail
1	Review general data centre environment including room tidiness and cleanliness.
2	Review documentation, including availability of manual's, drawings and schematics. Review mechanisms for updating documentation. Also to review room, rack, equipment and cable level labelling systems.
3	Review any local planning or landlords approvals.
4	Audit the general data centre building including integrity and décor to validate that the infrastructure is fit for purpose.
5	Check ceiling grid systems for integrity, and ensure spaces are clear and free of debris.
6	Check room access and exit arrangements including security and alarm system associated with access.
7	Check raised access floor systems to ensure these are in good condition and fit for purpose. Investigate floor void depth, and review alignment and cable wire way and traywork routing to ensure clear airflow where applicable.
8	Review general room layout in relation to equipment cabinets and airflow arrangements.
9	Identify cooling equipment, capacity, resilience and airflow arrangements in relation to the critical load. Review free and economised cooling capability.
10	Identify hot and cold air separation, cabinet alignment, aisle containment strategies, return air plenums, obstructions and rack level airflow.
11	Review general fire protection and suppression arrangements.
12	Review IT cabling infrastructure installation standards and suitability.
13	Identify racks, associated layouts and airflow arrangements.
14	Review power and IT / Control wireways and containment systems.
15	Identify room security arrangements.
16	Review electrical power arrangements, distribution boards, lighting and earthing.
17	Identify UPS systems, configuration, autonomy, bypass and shutdown procedures. Review efficiency and modularity in relation to the critical load.
18	Identify generator systems, location and power transfer arrangements.
19	Identify environmental and security monitoring including temperature, humidity, leak detection, Volt Free contacts and BMS interface systems.
20	Review and identify metering and energy measurement arrangements. Identify ability to measure total facility power, critical power, PUE and DCiE readings.
21	Review energy collection and reporting methodologies.
22	Identify support and planned preventative maintenance services.

Priority Levels

The audit service will allocate priority levels against recommendations. These priority levels are made in direct relation to room reliability or energy efficiency.

Reliability = R Energy = E

Priority Level	Comments	Recommended Actions
R-Low	There is a noted problem, which has no operational effect and zero or limited impact on the overall room MTBF.	Implement as part of on going room policies.
R-Medium	There is a noted problem, which will have some limited effect on room operations and will have an effect on overall room MTBF.	Implement when budgets are available.
R-High	There is a key problem which will have a key effect on both room operations and room MTBF.	Implement at the earliest opportunity.
R-Critical	There is a major problem that will provide a significant impact on both room operations and MTBF.	This should be corrected ASAP.
E-Low	There is a noted problem which will have minor effects on energy efficiency.	Implement as part of ongoing room policies.
E-Medium	There is a noted problem that have some measureable effects on room energy efficiency.	Implement when budgets are available.
E-High	There a major problem that will have a significant impact on the room energy efficiency.	Implement at the earliest opportunity.

Measurements & Readings included within the Data Centre Audit Service

Item	Details	Notes
Temperature & Humidity	Multiple measurements will be taken throughout the room with a hand held Fluke 971 digital meter. Recordings are made of measurements for presentation as part of the audit document.	Where drawings are available reading will be overlaid for visual review.
Critical Load	Where UPS or local PDU meters are available critical load reading will be taken to assess the total critical load.	Basic audit excludes direct clamp meter measurements where no meters are available.
Total Facility Power	Where local meters are available if practical meter readings will be take to asses the total facility power.	Basic audit excludes direct clamp meter measurements where no meters are available.
Power Usage Effectiveness	Where our engineers are able to obtain critical load and total facility power readings detailed above a room PUE reading.	This is a ‘snap shot’ figure only.

Additional Data Centre Services

Workspace Technology offers a range of data centre audit and survey services. These services may be specified as a result of a Data Centre Audit or as part of a comprehensive Data Centre planned preventative maintenance and support package.

Service	Details
3D Modelling and CFD Service	The 3D Data Centre Modelling and CFD service enable clients to visualise interactive 3D data centre models of existing or prospective data centre infrastructure.
Airflow and Thermal Imaging Survey	The Airflow and Thermal Imaging Survey enables data centre manager to identify problems with cooling capacity and airflow efficiency.
Data Centre Optimisation Service	The Data Centre Energy Optimisation Service will address data centre imbalances by fine tuning system settings and configuration arrangements to achieve improvements in energy efficiency and deliver maximum performance within ASHRAE recommended environmental operating range.
Electrical Thermal Imaging Survey	The detailed Electrical Thermal Imaging Survey of data centre electrical systems and equipment will help identify unseen faults on electrical systems which can cause expensive business downtime, damage, loss of data or risk from fire.
Power Quality Survey	The Power Quality Survey provide customers with a clearly laid out summary of load, power factor and harmonic data findings. When quality issues are identified the report will include recommendations to correct problems. The implementation of survey recommendations will help customers reduce energy bills and can prolong life and prevent premature failure of equipment.
Power Usage Effectiveness (PUE) Assessment	The PUE Assessment enables IT and data centre managers to accurately benchmark the Power Usage Effectiveness (PUE), Data Centre Infrastructure Efficiency (DCiE) and usage of the server room environment through direct analysis of power and energy consumption.

Further details on audit services can be found in individual audit and survey schedules.

Notes on Service Schedule

All work mentioned in the schedule is carried out subject to Workspace Technology's Terms and Conditions of sale.

The audit schedules shown are based on a standard and will not be applicable to every installation for every item listed. Consequently each task has to be qualified by the term; 'if it is safe so to do', 'if applicable', 'if possible' and 'if appropriate'.

It is possible that your specific installation may have additional or specialised equipment not mentioned in this schedule. In that case, the specific equipment would be the subject of addenda to the main contract.

Tasks mentioned in the schedule may also be omitted if Workspace Technology's engineers or its appointed agents deem that it is unsafe to carry out that task or that it may jeopardise the security of electrical supply.

Interested in finding out more?

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