

ESTATES DEPARTMENT CONNOLLY HOSPITAL

CONTROL SYSTEMS AND BMS MAINTENANCE SPECIFICATION

The following is a description of the works involved in a typical maintenance program for the BMS and Controls systems;

Detailed Description of Typical Control System Maintenance

BMS

1. Clean operators station(s) e.g. monitor screen, housing etc. Clean and check operation of printer(s). Repair as required.
2. Carry out manufacturer's maintenance procedures on the terminal PC and printers i.e. perform diagnostic tasks on the equipment and its software operating system.
3. Check all cables and connectors. Fix as required.
4. Check integrity of LAN communications network between the operator's station(s), outstations, controllers, actuators, sensors, stats etc. Repair as required.
5. Check from the operators station the operation of all plant e.g. boilers, chillers, pumps, fans, electric heater batteries, terminals units, valves and dampers in conjunction with associated safety devices by overriding the auto condition and forcing plant on/off, open/closed etc. Repair control instruments as required.
6. Software changes to be fully backed-up, if any are made e.g. sensor calibration offsets etc. Changes to be agreed with KNX/BMS technician.
7. Check from the operator's station all controller and PC based software programs including control loops, rotational points, control strategies, global information etc. Repair as required.
8. Verify software interlocks and Optimiser programmes. Adjust as required.
9. Review existing data logs and alarm logs. Check operation and remove old records. Follow up all alarms. Fix problems as required.
10. Check and verify operation of all inputs and outputs in each outstation. Adjust and repair as required.

11. Check the control strategy for all systems and ensure that it is configured in the best way possible to achieve optimum operating conditions within the space.
12. BMS Software to be updated as new software is available from manufacturer.

Field Equipment / Plant

1. Check overall condition of all control valves i.e. check for correct stroke/travel, check that valves are not letting by, check for gland leakage etc. Service as per manufactures requirements. Repair / adjust as required.
2. Check overall condition of all damper actuators i.e. check for correct stroke/travel, check auxiliary switches and potentiometers, check spring return if applicable etc. Lubricate in accordance with the manufacturers requirements. Repair / adjust as required.
3. Inspect, clean and check calibration of all sensors and instruments. Adjust and repair as required. If installation is faulty, re-install device.
4. Check the position of all sensors for optimum operation. Relocate the device if required.
5. Check power and control wiring connection at plant and control devices. Repair or replace as required.
6. Check condition of all on/off control devices e.g. thermostats, humidistat, differential pressure switches, flow switches, level switches, etc. Adjust / repair or replace as required.
7. Check operation of all discrete controllers including speed controllers where field mounted. Carry out functional checks and diagnostic routines as recommended by the manufacturer. Check generation of alarms associated with digital inputs by operating field equipment. Adjust or repair as required.
8. Check all Dampers and Actuators response to control signal. Adjust or repair as required.
9. Check the operation and set point of all sensing devices in the field including pressure differential sensors, temperature sensors, display monitors, etc. Adjust / repair or replace as required.

Motor Control Centres

1. Clean exterior / interior of all MCCs.
2. Check condition of wiring, check electrical terminations are tight. Adjust as required.
3. Conduct visual inspection and functional check of all components e.g. switch dis-connectors, stop locks, switches, indicator lamps, fuses, contactors, overloads, frequency inverters etc. Ensure overloads are set correctly for the connected load. Carry out functional checks and diagnostic routines as recommended by the manufacturer. Adjust / repair or replace as required.
4. Inspect all cable termination points, starters, fuses, circuit breakers and isolators for signs of overheating. Adjust / repair or replace as required.

Building Performance

1. Check space temperatures at start of occupancy and time set-points achieved. Adjust parameters if necessary following consultation and agreement with the KNX/BMS technician. If performance is not acceptable, establish problem and take corrective action.
2. Check space temperature/humidity during occupation. Adjust parameters if necessary following agreement with the KNX/BMS technician. If performance is not acceptable, establish problem and take corrective action.
3. Obtain feedback from maintenance personnel and building occupants as to the environmental condition within the space and use this data to correct and refine the operating parameters of the systems.

The object of this maintenance routine is to ensure that the control systems are operating at their optimum performance. Any defects found are to be put right immediately. Approval from the Controls manager for the purchase of spare parts is required in advance. This can be obtained during the maintenance visit.

This is considered a minimum maintenance regime and is to be performed at quarterly intervals. Service reports verifying the completion of the foregoing works are to be submitted to the Controls manager within one week of completion of the quarterly service. Service reports should be in hard and soft formats.