CONSIDERATIONS IN DESIGNING FOR HEALTH AND SAFETY

	Indicate the status for a particular key design check using a tick in the appropriate column.	Not applicable	Action required	Activity in progress	Satisfactory
Ref	**Design check**				
General					
1	The client has been made aware of their CDM duties.				
2	Information has been provided to relevant parties concerning health and safety risk issues.				
3	Significant health and safety risks have been identified which have an impact on construction, operation, maintenance and dismantling.				
4	The designer has a clear understanding of the client / end user maintenance strategy.				
5	Methods of maintenance for each system and plant item have been established.				
6	The level of maintenance to be provided and degree of skill of maintenance operatives have been considered.				
7	The level of after-sales support provided by suppliers of plant and systems has been considered.				
8	The likely availability of spares during the lifetime of equipment has been considered.				
9	Systems are designed so that maintenance activities do not place building users and the public in any danger.				
10	The need for maintenance has been minimised, for example by designing simple, straightforward systems.				
11	Entry points for utilities and specific requirements of utility authorities have been identified.				
12	Standby plant is provided for essential services to reduce downtime and avoid the need for panic repair in the event of failure.				
13	Services are zoned to avoid the need for live working.				
14	The need for hot working has been minimised.				
15	Wet services are routed to avoid electrical rooms.				
16	The use of equipment and processes that produce hazardous waste has been minimised.				
17	The use of hazardous substances has been designed out wherever possible, or the level and duration of exposure has been minimised.				
18	Refrigerant quantities are minimised – for example by minimising refrigerant pipe runs.				

19	HSE ACoP L8 and supporting guidance has been followed in the design of hot and cold water systems, systems with cooling towers, and any other systems presenting a legionella risk.				
20	Operation & maintenance manuals and record documentation are comprehensive and provide all necessary information, for example locations of isolation points				
Access to Services					
21	In planning how services are accessed for maintenance and inspection, building occupancy patterns have been considered.				
22	Lifts, doors, corridors etc. on access routes are of sufficient size to enable plant and equipment to be removed and replaced safely.				
23	The design minimises the need to work at height.				
24	In considering suitable access equipment, the distance and consequence of a potential fall has been considered.				
25	Risks from installing, using and removing access equipment have been considered.				
26	Permanent access, such as working platforms, has been considered.				
27	Access is provided for appropriate authorities – for example, gas meters and substations may need to be accessible 24 hours a day to the supply authorities, and sprinkler valves need to be accessible to fire services.				
28	Ductwork is accessible for cleaning and testing.				
29	Fire dampers can be safely accessed for inspection.				
30	Systems using refrigerants are safely accessible for statutory inspections as required under F-gas Regulations.				
Plant Spaces					
31	Clear plant space is maintained, taking into account locations of columns and beams.				
32	Manufacturers' guidelines for access and maintenance space have been checked.				
33	Provision has been made for plant replacement, for example structural openings and drop zones for craneage of plant.				
34	Space for future plant is provided, including access routes.				
35	Items requiring simultaneous maintenance do not share access spaces.				
36	Sufficient space is provided for component parts such as motors, compressors, condenser tubes, coils, filters and fans to be removed.				
37	Escape routes are identified and will not be blocked by operating and maintenance activities (this rule can be relaxed if there is alternative escape route, however, a full risk assessment should always be carried out).				

38	Space is provided for storage of safety equipment.				
39	Tripping hazards are avoided by running services at high level.				
40	Where services are at high level, adequate headroom is maintained.				
41	Space is provided for connections to plant (bend radii for large cables, ductwork and pipework can be considerable).				
42	Pipework and ductwork routing does not impinge on maintenance space or escape routes.				
43	Motor control panels are located close to the normal entry point.				
44	Plant is mounted on plinths to improve access.				
45	The effects of hinged components such as control panel doors, and burners have been allowed for.				
46	Space is provided for appropriate noise and vibration control.				
47	Operating weights (not shipping or dry weights) of plant, pipework, lifting beams etc. have been provided to the structural engineer.				
48	Adequate power supplies are provided for maintenance activities.				
49	Standard arrangements and equipment are used where possible (this will reduce the number of spare parts to be held and the risk of poor maintenance).				
50	Lifting beams are provided for removal of heavy items.				
51	Adequate facilities are provided for the isolation of plant and equipment for maintenance and replacement.				
52	Adequate facilities are provided for emergency isolation, including emergency stop for plant with moving parts, and emergency lock-off controls close to the normal access doors.				
53	Space is provided for the storage of spare parts.				
54	Space is provided for the safe storage of chemicals such as those for water treatment.				
55	Control devices, valves, gauges, drain points, fill points etc. are accessible and at a sensible height.				
56	Adequate lighting is provided for general access and for undertaking maintenance activities.				
57	Adequate ventilation is provided.				
Service ducts, risers and voids					
58	Adequate space is provided for access and the use of tools.				
59	Sufficient openings are provided to enable the safe maintenance and replacement of services.				

60	Openings are of sufficient size – larger openings may be necessary if space inside or immediately outside the service duct is restricted.				
61	Flooring is removable or hinged to allow services to be installed or removed, while enabling fire barriers to be inspected.				
62	The risk of drops in vertical ducts has been considered, and minimised by the use of guard rails, fixed ladders etc.				
63	Risers have lockable doors *(self-locking but openable from the inside),* which can be opened fully – preferably 180°.				
64	Warning signs are provided at service duct entry points.				
65	Adequate lighting is provided, with appropriate switching arrangements.				
66	Services are arranged so it is possible to remove one without disturbing the others.				
67	Services such as water and electrics are separated.				
68	Bunding is provided to electrical and IT risers where water ingress is possible.				
Confined Spaces					
69	The necessity for personnel to enter confined spaces has been designed out (for example by specifying remote monitoring or withdrawable equipment).				
70	Entrances to confined spaces are large enough to allow personnel to safely exit the space.				
71	Sufficient space is provided to undertake tasks safely, taking into account tools and protective clothing.				
72	Adequate ventilation is provided.				
73	All necessary safety devices are incorporated into the design, including detection, communication and alarm systems.				