T-LEVELS | Institute for Apprenticeships & Technical Education

T Level Technical Qualification in Building Services Engineering for Construction (8710-30)

8710-033 Core: Employer-Set Project

Project Brief

Autumn 2023

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Project brief

The employer

Historical Property Solutions Ltd is a newly established building contractor with two branches in the Midlands. The company undertakes projects on historical and listed buildings, and specialises in the design and installation of building control and protection systems, which includes CCTV, fire protection systems and intruder alarms. The company has two teams: a design and planning team, which is responsible for the survey, design and planning; and an installation team, which carries out the installation of systems. As a member of the design team, you have been asked to work on the planning of their next major project.

The project

Historical Property Solutions Ltd has been approached by a client, which is a local authority, with proposals for the installation of CCTV, alarms and access control systems in the town hall. These systems are required to improve the security of the building and its historical contents, which include local and national artwork. The local authority has provided plans of the building, built in 1899, with an atrium-style extension added in 1988, to assist in the design and planning of this project (please see Figures 1 and 2 in the 'Drawings' section of this document).

Public access could be an issue when installing the systems, due to the building being open all year round to serve the local community with its various functions. As detailed on the plans, there are a number of entry and exit points. The building houses a public/council meeting room, a function/hospitality room, the mayoral office, a planning department, an education department and other government rooms.

Additional work will also be undertaken on the building, including upgrades to the existing lighting and heating/ventilation controls.

Planning requirements will impact where systems can be located. The requirements of working with heritage buildings, and the limitations this brings when siting equipment, passing through walls and ceilings, and removing decorative wood panels, are all elements that will need to be considered for this project.

All internal walls within the building are lined with bespoke decorative wooden panels.
The building is constructed externally from local limestone with walls measuring 750 mm in thickness. The ceilings throughout the building are fibrous plaster ceilings with bespoke mouldings. The roof is constructed from a mixture of traditional slate and lead rolled panels.

There is no up-to-date asbestos register available for this building.

Client specification

Protection systems

The client has requested a remotely operated alarm system with automatic notification, with the standard main components of a system, control and indicator equipment, audible warning device and detection devices.

Each room will require movement detectors and all external doors should have door contacts installed.

To increase security, personal attack buttons should also be considered within the mayoral office. The installation should comply with a Grade 4 - high risk installation.

To ensure access to the building, and sensitive areas within the building, is controlled and monitored, the client has also requested an access control system to be installed.

The client has requested a remotely operated CCTV system, with the following components:

- Pan-tilt-zoom (PTZ) cameras externally
- Static internal cameras
- Two-way audio challenge
- Public address (PA) system
- Detectors

Heating/ventilation and lighting systems

The client has requested upgrades to the existing systems for both smart heating/ventilation and smart lighting controls throughout the building to improve the energy efficiency and carbon footprint of the building as part of the upgrade works. This will include the use of occupancy sensors.

Occupancy sensor specification for lighting circuits

The occupancy sensors should have a range of 6m in any direction (360 degrees) and they should be ceiling mounted.

Example of how the sensors would typically cover a room:

Image of room with occupancy sensors - lightsearch.com

Drawings

Your tutor can provide full-size (A3) copies of the drawings, as necessary.

Figure 1: Town hall building layout plan - ground floor

Figure 2: Town hall building layout plan - first floor

Get in touch

City & Guilds Technicals Quality Team

We are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

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