

Case Study

Brockworth SEMH School Electrical Wiring Installation

Client:

E.G. Carter Limited

Contract:

Wiring Installation and Ancillary Works
Brockworth SEMH School

Contract Type:

JCT Design and Build Sub-Contract 2016

Value:

£780,000

Duration:

1 year - completed Oct 2022

Referee:

Thomas Jones, Associate Director

Contact:

thomasjones@egcarter.co.uk

Details:

This large electrical installation and solar project was completed for E.G. Carter (the Principal Contractor) as part of a new carbon neutral school construction project. On this occasion, Gardiners' role was one of Contractor however many Electrical projects that we undertake are completed under the role of Principal Contractor.

Gardiners have completed similar projects for larger contracting companies including Kier Construction and Barnwood Construction.

The scope of works undertaken include the following:

- ◆ Preliminaries and drawings
- ◆ Liaison with Western Power and meter provider
- ◆ Photovoltaic installation and installation of power distribution
- ◆ Electric vehicle charging and energy metering
- ◆ Internal, emergency and external lighting
- ◆ Fire detection and intruder alarm with CCTV
- ◆ Disabled WC alarm and refuge system
- ◆ AV installation and access control
- ◆ Voice and structured cabling
- ◆ Lightning protection, earthing and bonding
- ◆ Key switches for fire alarm and access control system
- ◆ Testing, commissioning and client demonstrations
- ◆ O&M manual and health & safety file information



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Pre-construction

Gardiners were responsible for the design and specification of the installation works and produced specifications, drawings and layouts for the client. We also liaised with our chosen approved subcontractors to establish and provide the designs for the subcontracted elements including:

- ◆ Solar PV
- ◆ Fire, security and CCTV
- ◆ Lightning Protection

Smart controls and lighting were included within our design proposal which provide ambient as well as classroom illumination. Controls included occupancy and light level monitoring to minimise the amount of energy used and assist in contributing to the building efficiencies.

Construction Phase

With a tight delivery schedule, Gardiners were required to work in close co-operation and coordination with other trades. In addition, portions of our work (notably a large Solar Array installation) were completed by our approved and monitored subcontractors.

Throughout the project, daily briefings and regular health and safety reviews were conducted to ensure the minimisation of risk, control of housekeeping and the monitoring of project progress. A dedicated Project Manager was employed by Gardiners' Electrical Department to ensure efficient communication with the client, Principal Contractor and Principal Designer and to ensure contract progression. A lead operative was appointed to manage on-site daily requirements and communication.

Documentation was generated and approved by the Principal Contractor including Health and Safety Risk Assessments and Method Statements and project plans. These were incorporated within the main Principal Contractor's project plan to link in with other trades planned on-site.

Cost Planning Management

Throughout the duration of this project, Gardiners were responsible for submitting interim (monthly) claim applications. Costs were monitored against the (fixed) budget pricing and progression to plan. Throughout the duration of the project, any variation requests to tender were recorded and costed in line with the agreed variation pricing schedules or first principles.

Due to the lead times and requirement for on-site materials, Gardiners negotiated and scheduled procurement throughout the work planning phase. Materials will often be secured at fixed pricing (and to secure stock) with call-offs of the requirements monthly from the distributors' warehouse. This process helps to keep control of costs (against inflationary pressures) whilst avoiding large stock holding restrictions.

Gardiners are always mindful and would use our expertise to review the project brief and specification to seek out any possible value engineering options, whether this is at design stage or during the construction / installation process. If we believe there is a more cost effective product or method of working available; without compromising capability; we will highlight this to the client and propose our alternatives, with full details of costs and changes in specification for the client to review. The end goal is to achieve a product or method of working that not only offers the client the greatest value, but one that still possesses the necessary attributes and performance qualities to achieve the client's specification.

Another method used to achieve the best possible value is the competitive tendering of subcontracted works and higher value material requirements. Those tendering for our packages of works are competing with each other and are therefore incentivised to submit their most competitive price. Obviously, the lowest price is not always the defining factor, as the quality of products and services should not be compromised. This is why all our prospective suppliers and sub-contractors are subject to a vigorous vetting process before they can work with Gardiners.

The latest technology and innovations are always important in improving cost efficiencies. Gardiners experienced Electrical and Project Managers ensure that we are up to date with the latest product and service offerings throughout our supply chain by close liaison with suppliers and subcontractors and review of trade publications.

Whole life costs are considered at the design and construction phases to ensure the lowest practical running and servicing costs are achieved whilst complying with clients' requirements.

Example documents are provided, please refer to attachments commencing Q11.1.iii)

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Customer Satisfaction

The following actions were taken to ensure that a high level of customer satisfaction was maintained throughout the contract:

- A site Lead Operative (key contact) was established to coordinate site activities and liaise with the Principal Contractor and client.

- ◆ Work progress was regularly monitored by Gardiners' Electrical Project Manager (also a qualified electrician).
- ◆ Contract progress and monthly claims were overseen by Gardiners' departmental Electrical Manager.
- ◆ A continuous and high level of communication was promoted and maintained to ensure interaction with other trades was effective. In addition to other contractors on site, Gardiners established and maintained a close working relationship with our subcontractors' trades to ensure safe and efficient use of resources.

Gardiners customer care procedures are documented within our certified ISO 9001 Quality Management System.

We operate Service Level Agreements within contracts to ensure that a high level of client communication is maintained. Regional Managers and operative teams establish and develop relationships with the client's site managers to effectively manage requirements at the local level.

Contract management is regularly reviewed with senior management team representatives and opportunities for improvements are explored in terms of maximizing resources and achieving best value for money. Customer feedback is monitored centrally and reviewed. Results are used to continually improve services provided.

Gardiners provide clients with a professional service, operating sign written vehicles and operators with corporate work wear and authorised ID badges.

Performance indicators are generated, reviewed and acted upon to ensure that we continually improve the service provided to Clients. Appropriate KPI's are utilised to monitor aspects such as schedule progress, environmental and sustainability, health and safety and financial performance. Staff performance is also monitored to ensure that any scheduling or performance issues are identified at an early stage and appropriate corrective actions taken.

Corrective and Preventive actions are reviewed for effectiveness during regular management reviews.



Communication

Gardiners' preferred method of communication is by e-mail as this ensures a concise and undisputed methodology with traceability to originators and timescales. Future reference is also possible in the case of any disputes. In addition, e-mail provides the possibility of absence coverage as Gardiners operate distribution groups for key client communications.

Gardiners utilise the Microsoft 365 e-mail platform for stability, resilience, data protection (UK based data) and spam control. Due to the flexibility of access methods, this ensures continuity in the event of an IT failure as access can be achieved by homeworkers, office-based workers and via the mobile network using smartphones.

Gardiners do not underestimate communication with clients both verbally and in person. We conduct site visits to review work requirements and have a resilient leased line based telephone system and reputable mobile network.

Throughout the course of this contract, weekly meetings were maintained between key personnel and the Principal Contractor. Due to the complex nature of the build and multiple parties involved, ad hoc meetings were also required from time to time, for example to:

- ◆ Plan electrical shutoffs.
- ◆ Synchronise service provision between contractors.
- ◆ Manage housekeeping hazards.
- ◆ Limit access to specific areas (e.g. during overhead works)
- ◆ Plan testing and commissioning.
- ◆ Monitor and manage variations.

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Handover

Gardiners provide completion reports and hand-over documents based upon clients' specific requirements. Where other stakeholders are involved (e.g., Building Consent, planning officers, third parties) Gardiners liaise with the necessary parties to ensure that all project requirements have been met.

Inspection reports are commissioned where necessary, examples can include:

- ◆ MCS Certification for Solar PV.
- ◆ Building planning control.
- ◆ Electrical inspection reports.
- ◆ Workmanship audits.

Once Gardiners are satisfied that all project requirements have been met, we approach the client and schedule a completion inspection. Any items requiring alteration or correction will be planned and completed. Once satisfactory and client approval has been gained, Gardiners will demobilise any remaining temporary works (e.g., scaffolding, fencing, CDM welfare & offices).

Completion of elements of the work may take place in phases, especially where roofing works are required. Sign-off may be required in order to allow for the early removal of scaffolding to minimise ongoing hire costs. Electrical testing will be conducted once staged electrical elements have been completed.

Following completion, Gardiners provide information to the Principal Designer for inclusion within the Health and Safety file. The Health and Safety File includes the following elements:

Project Information

Description of the project and scope of the works.

Certificates

Electrical test certificates.
MCS certification.
Building control certificates.
Warranty information.

Operation and Maintenance

Specification sheets for installed equipment.
Operating instructions for installed equipment.
Maintenance and cleaning instructions for installed equipment.
Material hazard data sheets and/or COSHH Assessments.
Emergency procedures in case of faults or failures.

Additional Information (client dependent)

Photographs of installation works.
Underground service plans and changes to underground services or details of found services.
Revised (as built) drawings.
List of recommended spares.
Asset register.
Building logbooks (e.g., fire, security, alarm systems).

Training

Training is scheduled with the client and completed, to ensure that all features and future maintenance requirements are understood.

Maintenance and Cleaning

If maintenance and/or cleaning is included within the contract, a schedule of agreed visits and information on what is included will be provided.

For this particular project, Client demonstrations were delivered on-site during a two-day training period to review and explain the use of the provided systems.

Example documents are provided, please refer to attachments commencing Q11.1.vii

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Photographs of work

Some example photographs of the work being undertaken (and completed) are provided for additional context.

