

DESIGN RISK ASSESSMENT

Bridgetown College, Bridgetown, Co. Wexford.

*DoEY Emergency Works Scheme
Heating Centre Upgrade Works*

Mechanical & Electrical Design Risk Assessment

INTRODUCTION

Under the Safety, Health and Welfare at Work (Construction) Regulations 2013 to 2021, the duties of the designer extend to the following:

- Taking account of the Health & Safety Plan and Safety File,
- Providing in writing all relevant information necessary to the Project Supervisor for the Design Process (PSDP), so as the project supervisor can carry out his / her duties as per the regulations,
- Co-operating with other designers, the PSDP and the Project Supervisor for the Construction Stage (PSCS) to enable them to comply with the regulations,
- Providing all information known to the PSDP regarding particular risks to safety, health and welfare of persons at work,
- Identify any hazards that a design may present during the construction stage and subsequent maintenance and where possible eliminate,
- Providing information to the appropriate contractor if no project supervisor has been assigned,

DISCLAIMER

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Mechanical & Electrical Design Risk Assessment

PROJECT DESCRIPTION

The site comprises the existing Bridgetown College, Bridgetown, Co. Wexford. The Contractor shall confine all operations to the designated work areas as indicated on the accompanying drawings.

The works are primarily located within the existing main heating centre and comprise the decommissioning and removal of the existing oil-fired heating plant and associated oil services, followed by the installation of new boiler plant and associated heating services. The works also include new external LPG storage tanks and underground LPG distribution pipework, modifications to the existing LTHW heating system and controls, associated electrical alterations, and all necessary builders' works including excavation, service trenches, penetrations, making good and reinstatement.

The Mechanical Contractor shall carry out the works using suitably qualified and competent personnel and shall submit a detailed programme prior to commencement.

As the works will be undertaken within an operational school environment, the Contractor shall allow for appropriate segregation of work areas, coordination of service interruptions and all measures necessary to maintain safe school operations and minimise disruption to occupants.

Please refer to the accompanying drawings and specification documents for full details of the proposed works.

Mechanical Services Installation Works

The works comprise the decommissioning of the existing oil-fired heating installation and replacement and upgrade of the main heating centre, including new boiler plant, LPG storage and distribution, associated LTHW pipework and controls, electrical services, builders' works and all associated ancillary works.

General Construction Notes:

The Contractor shall review all relevant drawings, specifications and available existing record information prior to commencement and shall verify the location and condition of existing mechanical, electrical, oil, LPG and other building services affected by the works.

The works will be undertaken primarily within the existing main heating centre and associated external LPG work areas, within an operational school environment. Particular care shall be taken during the decommissioning and removal of the existing oil-fired plant and associated oil services, installation of new plant, and connection to existing services. All shutdowns shall be planned and agreed with the School Authority in advance.

Prior to any disconnection, drilling, demolition, excavation or stripping-out works, the Contractor shall review the available Health & Safety File and Asbestos Register. Existing services shall be identified, safely isolated as required, and all services remaining operational shall be adequately protected throughout the works.

THE PRINCIPLES OF PREVENTION:

Regulation 15(1) of S.I. No. 291 of 2013 states that all designers must take account of the General Principles of Prevention which are contained in Schedule 3 to the Safety, Health and Welfare at Work Act 2005. They are as follows:

- a) The avoidance of risks.
- b) The evaluation of unavoidable risks.
- c) The combating of risks at source.
- d) The adaptation of work to the individual, especially as regards the design of places of work, the choice of work equipment and the choice of systems of work with a view, in particular to alleviating monotonous work, and work at a predetermined work rate and to reducing their effect on health.
- e) The adaptation of the place of work to technical progress.
- f) The replacement of dangerous articles, substances or systems of work by non-dangerous or less dangerous articles, substances or systems of work.
- g) The development of an adequate prevention policy in relation to safety, health and welfare at work which takes account of technology, organisation of work, working conditions, social factors and the influence of factors related to the working environment.
- h) The giving to collective protective measures priority over individual protective measures.
- i) The giving of appropriate training and instructions to employees.

It should be noted that:

- Only risks that can reasonably be foreseen at design stage can be assessed.
- Risks to those building and to those who might be affected by this work (eg: members of the public) must be considered. Risks during construction, and subsequent maintenance or repairs must be considered.
- Risk assessment may be simple or elaborate depending on the nature of the project and the risk in question. Conventions, generally taken, define a “hazard” as a condition or event with the potential to cause harm, and define a “risk” as the probability (P) that harm from a particular hazard will occur, combined with the likely severity (S) of the harm. $R = S \times P$. Note: it is accepted that this is a very subjective area where good judgement counts more than rigid formulae.
- As the project proceeds, designers need to assess the design and the materials to be used, to establish whether a risk is being introduced and to consider whether this risk can be removed or minimised.

Mechanical & Electrical Design Risk Assessment

RISK ASSESSMENT

A Design Risk Assessment has been completed. The risk ratings and action bands are defined as follows:

Likelihood

L	–	So unlikely that it can be assumed that it may never occur
M	–	Is unlikely but possible to occur during the life of the project
H	–	Is likely to occur during the life of the project

Severity

L	–	All other injuries or illnesses
M	–	3 day injury or illness
H	–	Death or major injury

Risk Rating

L	–	Minimal Risk
M	–	Low Risk
H	–	Immediate Risk

Action Required

L	–	Maintain Control Measures
M	–	Review & Improve Control Measures if necessary
H	–	Improve Control Measures Immediately

DESIGNER'S RISK ASSESSMENT

<u>Designer:</u> Geaney Engineering Consultants							<u>Project:</u> Bridgetown Community College – Heating Centre Upgrade Works				
<u>Project No.</u> 0862							<u>Date:</u> 16/09/2026				
Ref. No.	Activity / Element	Potential Hazards	Population at Risk	Risk Rating			Action at Design Stage	Action Taken		Possible Control Measures (Contractors)	
				L	S	R		By	Date		

Ref.	Activity / Element	Potential Hazards	Population at Risk	L	S	R	Action at Design Stage	Possible Control Measures (Contractors)
1	Existing electrical / underground services	Contact with live electrical or other buried services; serious injury / death	Mechanical & Electrical Contractors	L	H	H	Existing service information reviewed. Proposed external LPG route coordinated to minimise conflict with known services. Residual risk highlighted on drawings/DRA.	Confirm all existing services prior to works. Scan external work areas before excavation. Safe isolation, permit-to-work and safe digging procedures to be implemented.
2	Works at height – flues and high-level services	Falls from height; falling tools/equipment	Contractors, school occupants	M	M	M	Works at height identified and high-level works limited to those necessary for installation of flues and associated services.	Provide suitable MEWP/scaffold/access equipment. Segregate area below and control falling-object risk.
3	Electrical alterations associated with new plant	Electric shock / fire	Mechanical & Electrical Contractors	M	H	H	Electrical modifications identified within design. Existing circuits to be isolated before alteration or connection.	Identify, isolate, lock-off and prove dead before works. Electrical works by competent personnel only.
4	Decommissioning existing oil-fired plant and oil services	Residual oil, leakage/spillage, fire, contaminated materials	Mechanical Contractor	M	H	H	Existing oil-fired plant identified for decommissioning and removal as part of the works.	Existing oil services to be isolated, drained and made safe before removal. Control ignition sources and provide appropriate spill containment/disposal arrangements.
5	Removal and installation of boiler plant, pumps and associated equipment	Heavy lifting; crushing; musculoskeletal injury; falling plant	Mechanical Contractor	L	M	M	New plant selected/arranged to facilitate installation and future maintenance within the existing heating centre.	Prepare lifting plan where required. Use suitable mechanical lifting/handling equipment and maintain controlled lifting areas.
6	Modification / connection to existing LTHW system	Hot water, pressure, leaks and uncontrolled discharge during line breaks	Mechanical Contractor	L	M	M	Connections arranged to minimise interference with existing systems and number of line breaks required.	Isolate, drain and verify system condition before breaking into existing pipework. Pressure test new works prior to commissioning.
7	New external LPG	LPG leak;	Mechanical	L	H	H	LPG storage and distribution	Installation by competent LPG personnel. Control

Key:

L = Likelihood (Low, Medium, High)

S = Severity (Low, Medium, High)

R = Risk (Likelihood & Severity)

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	storage and distribution installation	fire/explosion; damage to LPG installation	Contractor, school occupants				incorporated into design with external tank location and underground distribution route identified. Relevant separation and safety requirements to be maintained.			ignition sources. Pressure/leak test and commission installation prior to use. Protect tanks and pipework from impact/damage.
8	External excavation/trenching for LPG services	Contact with existing underground services; excavation collapse; falls into excavation	Contractors, school occupants	M	H	H	LPG route shown on design drawings and coordinated to minimise excavation and interface with existing services.			Confirm services by records and scanning before excavation. Safe digging procedures, barriers and suitable excavation support/access to be provided.
9	Commissioning of new heating plant	Electric shock; hot surfaces; pressurised water; leaks; rotating equipment	Mechanical & Electrical Contractors	M	M	M	Plant specified with appropriate safety devices, insulation, controls and isolation provisions.			Commission by competent personnel in accordance with approved procedures. Guards, insulation and safety devices to be installed prior to operation.
10	Works within operational school	Interaction with students/staff; unauthorised access; deliveries and plant movements	School occupants, Contractors	M	H	H	Works primarily confined to existing heating centre and defined external LPG work areas. Requirement for segregation and coordination with school identified.			Secure and segregate work areas. Coordinate deliveries, shutdowns and high-risk works with School Authority. Maintain safe pedestrian and emergency access throughout.

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