

PROJECT: 18603 Toilet Refurbishments TETB

TEM CONTRACT No: 18603

Document Title:

Mechanical Scope of Works

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1 KEY PROJECT ENTITIES & SITE LOCATION

1.1 Key Project Entities

Key project entities are:

Entity	Name
Client:	TIPPERARY FET COLLEGE
Project Managers	Spendite
Structural Engineers	-
Architect	Spendite
Quantity Surveyor	-
M&E Services Consulting Engineers	TEM Engineering & Management DAC

Other key entities mentioned in this document:

- Main Contractor or Building Contractor: The firm appointed to carry out the building works.
- Mechanical Contractor: The firm appointed to carry out the Mechanical works.

1.2 Description of Site

These works are located at three sites, which are:

- Tipperary FET College Roscrea:
 - Old Dublin Road, Roscrea, Co. Tipperary. E53 P797.
- Tipperary FET College Cappawhite:
 - Cappawhite, Co. Tipperary. E34 A320.
- Tipperary FET College Clonmel:
 - The Mall, Clonmel, Co. Tipperary. E91K2E2.

2 SCOPE OF WORKS

The scope of works is comprised of:

Definitions:

- Mechanical Contractor – MC;
- Not Applicable – NA.

Item	Description	Scope
1	Preliminaries	MC
2	Site Services (Element 50)	NA
3	Heating Centre (Element 51)	NA
4	Drainage (Element 52)	MC
5	Water Distribution (Element 53)	MC
6	Gases Distribution (Element 54)	NA
7	Space Cooling (Element 55)	NA
8	Space Heating (Element 56)	MC
9	Ventilation (Element 57)	MC
10	Other Services (Element 58)	MC

Notes:

1. The elements described above follow the “Capital Works Management Framework” document “How to use the Costing Document (Building Works) – CO 1”.

3 BOUNDARIES

All above ground mechanical services to be included.

3 MAIN TECHNICAL CHARACTERISTICS

This section presents the main technical characteristics for all elements. The contractor shall include any miscellanea needed for the perfect running of the system, even if it's not listed below.

3.1 Preliminaries

Strip out of existing mechanical services and preparation for assembly of new installation.

3.2 Drainage (Element 52)

Drainage for:

- Cappawhite: Drainage for two toilets and two wash hand basins as per architectural layout and connecting into the nearest existing point.
- Roscrea: six toilets, five wash hand basins, connection into the new pipework according architectural drawing (below floor by main contractor, above floor by mechanical contractor). Soils Vent pipe to be installed.
- Clonmel: This site has two layouts/location for development of works. Nine toilets, nine wash hand basins and one sink at location one. Three toilets and three wash hand basins at location two. Soils Vent pipe to be installed.

3.3 Water Distribution (Element 53)

Cold and hot water supply for:

- Cappawhite: two toilets and two wash hand basins as per architectural layout and connecting into the nearest existing point.
- Roscrea: six toilets, five wash hand basins, connection into the new pipework according architectural drawing.
- Clonmel: This site has two layouts/location for development of works. Nine toilets, nine wash hand basins and one sink at location one. Three toilets and three wash hand basins at location two.

3.4 Space Heating (Element 56)

Space heating for:

- Cappawhite: two water heated radiators (1000 x 200 mm (LxH) at high level) as per architectural layout and connecting into the nearest existing point.
- Roscrea: three water heated radiators (500 W for disable toilet and 1x1000 W + 1x2000 W for bathroom circulation) as per architectural layout and connection into the new pipework according architectural drawing.

- Clonmel: This site has two layouts/location for development of works. Three water heated radiators (500 W for disable toilet, 2000 W for bathroom circulation and 500 W for cleaner's store) at location one. Two water heated radiators (500 W for disable toilet and 2000 W for bathroom circulation/corridor) at location two.

3.5 Ventilation (Element 57)

Ventilation for:

- Cappawhite: Two 100 mm diameter extraction in line fans (at least 13 l/s at 50Pa each), two 100 mm extraction air valves, two external louvres 200x200 mm, two 200x200 mm passive vent (external grille, internal grille and ductwork) and ductwork, flexible connections and accessories.
- Roscrea: Two 150 mm diameter extraction in line fans (at least 40 l/s at 50Pa each), eight 100 mm extraction air valves, two external louvres 200x200 mm, five 200x200 mm passive vent (external grille, internal grille and ductwork) and ductwork, flexible connections and accessories.
- Clonmel: This site has two layouts/location for development of works. Two 200 mm diameter extraction in line fans (at least 60 l/s at 50Pa each), one 150 mm diameter extraction in line fan (at least 40 l/s at 50Pa), twelve 100 mm extraction air valves, four external louvres 200x200 mm, three 200x200 mm passive vent (external grille, internal grille and ductwork) and ductwork, flexible connections and accessories.

3.6 Other Services (Element 58)

Other services as needed for the complete and perfect running of the system.

4 DEVELOPMENT OF WORKS

4.1 Setting Out

The position of all fittings, pipes, equipment machinery apparatus etc., indicated on the drawings are to be taken as approximate only and are intended to indicate generally the arrangement of the works under this Contract. The exact positions of all fittings, equipment and apparatus and all pipe routes shall be verified by the Contractor on the site and approved by the Engineer/Architect or Clients Representative prior to installation.

4.2 Builders Work through Structure and Fire Stopping

Should it be required to cut or drill any of the structural steelwork the Contractor shall obtain the approval of the Consultant in writing before any such cutting and drilling is carried out.

The contractor is responsible for all builders work necessary to complete the works. Where cables are routes and penetrate existing fire compartments the contractor is to re-seal same with a suitable fire seal.

4.3 WARRANTY / MAINTENANCE

The work is to be maintained in good running order for a period of twelve months after the completion of the Contract and after this period of twelve months, finally passed by the Engineers. Any defect developing in the system during this period to be rectified and made good at the Electrical Contractor's own expense. Causes outside the control of the Contractor are accepted.

5. TECHNICAL SPECIFICATIONS

The purpose of this section is to set out the specific criteria for the Mechanical Services.

5.1 Codes, Standards and Design Guidelines

- Building Regulations:
 - Technical Guidance Document B – Fire Safety;
 - Technical Guidance Document E – Sound;
 - Technical Guidance Document F – Ventilation;
 - Technical Guidance Document G – Hygiene;
 - Technical Guidance Document H – Drainage and Waste Water Disposal;
 - Technical Guidance Document L – Conservation of Fuel and Energy;
 - Technical Guidance Document M – Access and Use;

- Any other relevant technical guidance documentation.
- Other Regulations
 - All relevant Irish Standards and Regulations;
 - All relevant European Standards and Regulations;
 - Guidance documentation from CIBSE, IEL etc.;
 - IS 291:2015 Portable Fire Extinguishers;
 - IS 820:2019 Non domestic Gas Regulations (Edition 3);
 - HVCA DW 171 Standard for Kitchen Ventilation Systems;
 - HVCA DW 144 Specification for Sheet Metal Ducting;
 - Any other relevant technical guidance documentation.

5.2 Drainage (Element 52)

The installation shall consist of a complete, above ground, soils & wastes system, including traps overflows, vents, air admittance vents, access points, fire collars etc. Pop-ups at ground floor level shall be provided by others. Modifications to pipework and pop up at ground floor level will be provided by the mechanical contractor.

5.3 Water Distribution (Element 53)

Mains, Cold, Hot Water Installation

This section covers the mains, cold and hot water services distribution throughout the building. Copper pipework to be employed for these services.

Materials

All pipework and fittings shall comply with the relevant Irish Standards, and be suitable for the environment in which they are to be installed

Tests

After the erection is complete, the whole of the pipework system shall be tested under hydraulic pressure of 7 bar(g).

5.4 Space Heating (Element 56)

Low Pressure Hot Water Heating Installation

This section covers the low-pressure hot water heating installation, extending from the primary plant to serve all areas as indicated on the drawings.

Distribution pipework shall be installed as shown on the drawings. It shall be insulated as per other sections of this specification.

Pipework

Piping shall be multilayer pipework from the manifolds to the radiators.

Motorised Valves

Each room will be controlled via a motorised valve located in the room and room thermostat (digital output) will be provided in the room.

Isolating Valves

Isolating valves shall be provided where shown on the drawings and shall be bronze solid wedge gate valves with non-rising stems, and shall conform to BS 5154.

Radiators

Radiators of the type and size shown in the Schedule of Heaters as indicated on drawings shall be supplied and erected in the locations specified. Radiators shall generally be

Insulation

All pipework under this section shall be insulated in accordance with B.S. 5422

5.5 Ventilation (Element 57)

This section covers the extraction systems.

Materials

All ductwork shall comply with the relevant Irish/British Standards, and be suitable for the environment in which it is to be installed.

Unless stated otherwise all sheet metal ductwork shall be fabricated from hot-dipped galvanised sheet to BS 2989, Grade Z2, coating type G275. All cut edges and bare metals shall be cold galvanised i.e. coated with zinc-rich paint.

Sheet metal ductwork with exposed surfaces and associated metal flanges, brackets, drop rods and other components, whether galvanised or not, shall be primed after erection.

Flexible Ductwork

Flexible ductwork may be used to make the final connection between air terminal units, diffusers etc.

5.6 Other Services (Element 58)

General Technical Specification

Tests

Hydraulic tests shall be carried out on all pipe lines to the conditions appropriated.

Anti-Corrosion Additive

The subcontractor shall include for dosing the LPHW system additive in the proportions recommended by the supplier.

Fire Fighting Installation

Fire Stopping

All services passing through fire walls etc. shall be fire stopped to achieve the wall rating. The contractor shall include for this in his contract for all services under his remit.

Commissioning

This section covers the commissioning of the new mechanical services in the building. The Contractor is advised that the commissioning will be detailed and exacting.

Commissioning Reports and Format

The commissioning format and reporting will be in accordance with CIBSE Guidelines and shall be as set out in the following commissioning reports:

- CR.201 Water Services Installation (Incl hot water installation);
- CR.202 Ventilation System;
- CR.203 Soils and Wastes System;
- CR.204 Heating and Cooling System;
- CR.205 Controls System.

Survey and Programme

General

The Contractor shall include for a detailed site survey of installation prior to works commencing. The Client will be in operation at all times.

6 SPECIFICATION SCHEDULES

6.1 Mechanical Drawing Schedule

As per architectural documentation.

7 MECHANICAL TENDER SUMMARY AND BREAKDOWN

7.1 Tender Breakdown (Element 59)

Item	Description	Price
.1	Preliminaries	€
.2	Heating Centre (Element 51)	€
.3	Drainage (Element 52)	€
.4	Water Distribution (Element 53)	€
.5	Gas Distribution (Element 54)	€
.6	Space Cooling (Element 55)	€
.7	Space Heating (Element 56)	€
.8	Ventilation (Element 57)	€
.9	Other Services (Element 58)	€
.10	Any Items Not Included Above.	€
	TOTAL	€