

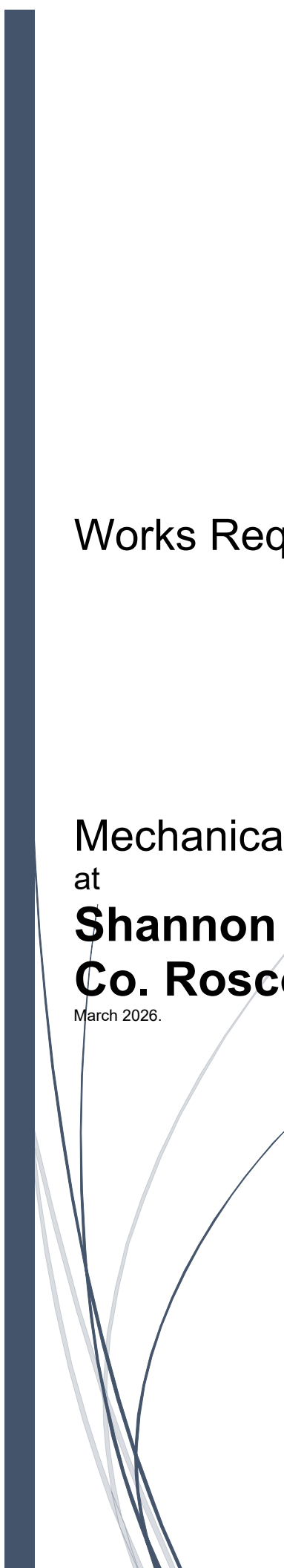


CONSULTING  
ENGINEERS  
LTD

# Works Requirements V1

## Mechanical Works at **Shannon Valley Co. Roscommon**

March 2026.



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# **Section A – Contract Works**

## A.1 PROJECT PARTICULARS

Note.

The general specification (Part B) is a general document covering standards and procedures and quality. It is not the scope of works.

If options will save money a quality review will take place after the tender to review these. There will be no costs to the client for adhering to what they have asked for, regardless of any caveats or notes with the tender.

Installation work to be carried out by qualified staff with minimum 3 years post apprentice experience. fully conversant with the relevant rules.

We will require Collateral Warrantees directly between the Contractor and the Client.

### PROPOSED DEVELOPMENT

The works consist of the supply, delivery, installation on site, and commissioning of the Mechanical Services at the proposed development.

All services are to be concealed, and where exposed of the highest standard, both for visual appeal, but also durability.

### CONSTRUCTION

The building is a concrete ground floor slab and timber joists upstairs.

The site will NOT BE in occupation during the works.

### SCOPE OF WORKS

The works include for the full scope of electrical services. The works to comprise the supply delivery, installation on site including all handling and accessories of :-

- Radiator system
- Air-to-water heat pump system
- Fresh wall vents
- Ventilation system including ducting and ceiling grills.
- Hot, cold and mains water
- Water tank and booster pump insulated in attic.
- Soils and wastes, incl acoustic wrap
- Controls, incl web app
- External services
- Pipework systems
- Insulation
- Testing and commissioning
- Record drawings & maintenance manuals
- Strip out of existing services, and setting up temporary services for the main contractor

For Five-year full maintenance support is to be available.

The following specialists will be on site and will require servicing either from the mechanical or electrical contractors.

There will be a number of Client specialists

Kitchen suppliers

The specialists will be on site and will require service either from the mechanical or electrical contractors.

Attendance and support to these is deemed included.

Equipment is to be installed in accordance with the manufacturers requirements and with due regard for Safety and Health at Work requirements.

We have made the applications but following up and chasing the utilities will be carried out by the contractor. Liaison and organising the ESB and Phones Provider will form part of these works.

Preliminaries, and enabling works are to be included in you tender bid and no variation claim will be accepted for these items. All capital contributions will be paid by the Client direct. The contractor shall ensure that the requirements of the Local County Council and other statutory bodies are being adhered to completely.

## QUALITY NOTES

Brackets are not a luxury item, and gallband is not to be used as a matter of course, and agreement sought and received where it is used.

Liaise with the gas and water supply companies, as necessary to ensure suitability of supply arrangement, and to ensure connection when required.

Install, test and commission the mechanical work in accordance with the current standards by qualified and experienced staff.

Accessories necessary to complete the installation to be types recommended for the purpose by relevant equipment manufacturer.

In locations where moisture is present or may occur, use corrosion resisting fastenings and avoid contact between dissimilar metals.

Comply with restrictions on the cutting of holes, chases, notches, etc. in structural elements, as directed by the Structural Engineer.

Routes to be straight and vertical or horizontal unless shown otherwise.

Local isolation at each connection.

Conceal cables wherever possible; obtain approval of locations where exposed to view.

Position cables at least 150 mm clear of other services. Cables running parallel and adjacent to heating pipes to be located below the pipes.

Sleeve cables passing through masonry walls.

Do not run cables in spaces where they will be surrounded or covered by insulation. Where this is not practical, size cables accordingly and inform CA.

Protect cables in plaster with galvanized steel channel.

All services are to be concealed, and where exposed of the highest standard, both for visual appeal, but also durability.

The works include the full supply delivery to site, putting in place, securing and connecting up, with all measures necessary for commissioning, and final commissioning, testing and final hand-over to the client, including detail man to man instructional walk-through for the hotel staff, and maintenance contract for one full year as part of the package.

It will be a condition for the award of this Contract that the contractor must be able to produce promptly on request a tax clearance certificate. In the case of a non resident, a statement from the Revenue commissioners will be required.

Mechanical or Electrical services shall NOT be erected without having met and agreed the services routes with the other specialist contractors.

These inter-services meetings are all to be minuted, and the minutes circulated.

## GENERALLY

The preceding comprises a description of the works, and a note on the requirements under BCAR.

The general specification is there as support information should there be a detail query. In all cases the manufacturers requirements take precedence, but where conflict occurs we are to be notified prior to any work, in good time so there can be no delays on site.

The lowest tender may not be the accepted tender. Previous experience and the team proposed will form part of the qualification process. The contracts manager and foreman shall be identified as part of the Tender submission.

A list of equipment has been included. Where specific materials or equipment are named, alternatives can be considered. **However**, any alternatives have to be submitted with a quality review sheet, with two columns indicating the primary functions and quality points identifying the pros and cons for each element to allow prompt reviews and consideration. Costs have to be identified as part of this matrix. Running costs can also be considered as part of this process.

Periodically the **ELECTRICAL** contractor must co-ordinate an on site meeting with the other contractors. This is to be minuted. The meeting is to have an agenda to include who is delivering what. The equipment size. Sketches of plant areas, with plant roughed out. Details of all wiring requirements, and what links to where. CMD are to be part of this process.

The particular specification provides site specific details of particularly important areas of the design. . It is to be read in conjunction with the drawings, additional information and any data sheets at the end of this specification, the general specification, the drawings and all other contract documentation. Any apparent contradictions between tender documentation should be queried with the Employer's representative during the tender process. In the case where a contradiction is not highlighted it will be at the discretion of the Employer's Representative to decide which document takes precedence. In the case of all standards outlined in this and other contract documentation it is to be taken that the latest version or superseding standard is the relevant standard. (The precedence of information as defined within the Contract will still stand on all other matters.)

Any pipework or conduit systems used in the screed shall be suitable and approved for that use.

Cables in conduit in the screed must be pulled in after the screed is poured.

Include for liaising with statutory bodies, where their service is required

The installation must comply with the current relevant regulations, and the current Building Regulations.

The works include the full supply delivery to site, putting in place, securing and connecting up, with all measures necessary for commissioning, and final commissioning, testing and final hand-over to the client, including detail man to man instructional walk-through for the client, and maintenance contract for one full year as part of the package.

Including removal from site of all rubbish and debris and any consumable items required to provide a complete and operational system.

## BCAR

**Please note the following as no exceptions can be or will be accepted.**

Under the building regulations CMD are to be notified a minimum of 5 working days in advance of major milestones. This for example is the laying of underfloor pipes (see schedule above for detail) If we do not get adequate notice the Assigned Certifier is required to ask the works to be proven, but where this requires visual inspection, they have asked for floors to be lifted and fully replaced from scratch.

The Government inspector has the same authority, so early notice avoids any issues later.

## CE

All materials installed must have determined and provided as part of the submission confirmation on the requirements for a "CE" mark, and the product must be marked CE but the accompanying certificate is to be provided

## SAFETY

All services serving the existing property are to be made safe, BEFORE works commence. This includes all agencies. ESB, Gas, Water, Phones, TVs and any other known or observed services.

All sites must have the safety documents issued by the above which can be got as free issue.

www.DIG.ie must be contacted for any file information about the site, as well as the direct contact with utilities.

A process of slit trenches and or non-invasive tests must be carried out prior to digging.

The ESB MUST be contacted by the contractor, and met to review the existing incoming supply points, to allow them to be made safe.

Bord Gais MUST be contacted by the contractor, and met to review the existing incoming supply points, to allow them to be made safe.

The builder will require a builders supply, and as such an ESB supply should be made secure and safe and a temporary supply provided to the builder.

All staff must have a safe pass, and each company shall have a completed safety file prior to commencement approved by the Health & Safety Co-ordinators for the site.

### **Failure to attend site will not be accepted as a reason for issues once started**

A foreman is to be on site at all times familiar with Electrical modern building procedures. He will be required to counter-sign all test sheets. The contracts manager and foreman shall be identified as part of the tender submission.

Any works in and around finished areas is to include making good, and where there is a painted finish, this surface is re-instated and primed ready for a finish coat of paint.

## A.3 HEATING SYSTEM

The heating system shall comprise;

- Air-to-water Heat pump and associated internal unit
- Radiators to all floors
- Floor by Floor room control
- CMEV system including ducting

The majority of plant & equipment shall be located in the Utility Room with the cold water storage tanks located in each attic, stop cocks located under the kitchen sink.

No isolating devices shall be installed in a position where the safety or integrity of the installation may be endangered.

A fill system with pressure gauge, drain cock, suitably sized expansion vessel shall be installed.

The areas heated by a underfloor heating system will have placed by the builder the appropriate insulation and plastic membrane as specified by the Architect.

The mechanical contractor shall supply and install:

- Perimeter insulation
- Sleeves at doors 400 long
- Rails for clipping the pipes
- Sensor pocket set 1.0m into screed from perimeter
- All materials necessary to complete the system.

Pressure test the system, record results, and during the pour of the screed and monitor any loss of pressure.

The insulation and screed are by the MAIN CONTRACTOR.

Before the floor finish is secured in place the heating in all areas is to be run at 23 deg C until the flooring manufacturers requirements are achieved.

A **high limit stat** is to be placed in the end pocket of the manifold to cut-off the heat pump if the flow exceeds this temperature.

The heating pipework will be run in Alupex from manifolds.

**All pumps** shall have electronic control drives to reduce noise and improve efficiencies and reduce running costs.

All heating circulation pumps are to Grundfos Alpha or equal "A Rated" pumps, in accordance with the new requirements.

### CONTROL ELEMENTS, PART OF SUPPLY

Indoor sensor	yes
Outdoor sensors	yes
Cylinder sensor	yes
Controller	yes
Low loss header	yes, flow and return
Timeclock	yes – room by room

### EXPANSION VESSEL

Diaphragm type	12 L / TBC
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## **PUMP SCHEDULE**

N/A

## **HOT WATER CIRCULATION PUMP.**

N/A

## **UNDER FLOOR HEATING**

N/A

## **PUMPS**

All pumps shall be capable of the duties specified, and the Contractor shall supply the agent or representative with a list of the duties along with the pump schedule at the time of ordering, to ensure that no alterations to specification by the manufacturer changes any aspect of their capacity.

Pumps shall be wired for single phase 220 V, 50Hz. or as specified.

Each pump shall be installed in a manner which facilitates its maintenance and which also minimises the transmission of noise.

A light-weight swing type non-return valve and a thermometer, shall be installed upstream from each pump, and a drain cock with hose union, installed downstream.

Pumps shall be installed in accordance with the manufacturers recommendations.

## **PIPEWORK INSTALLATION, AND MATERIALS**

Pipe and Fittings for the various services specified herein shall be of type, kind and ratings as specified in the following schedule, unless if otherwise indicated on the drawings or this specification.

Heating pipework shall be insulated copper in Utility room / Henco / Unipipe / Allupex pipe in pipe and shall be REHAU, Kite Marked & Agrémont approved

Exposed pipework shall be chrome finished where visible

Under floor heating pipework shall be as per specialist supplier, and shall be Agrémont approved

## **OTHER**

Heating water treatment	Item as per supplier and other linked equipment requirements
Drain Auto air vent, with ¼ turn valve	end of runs end of runs / high points Self sealing seat type
Strainer	Each pump

## A.4 VENTILATION, MECHANICAL

The supply delivery and installation of a complete CMEV ventilation system, including wall vents.

Extract will be required in all wet areas to a central mechanical Extract system (CMEV). Supply air will be provided by local vents.

Supply air to habitable rooms will be provided by local vents.

The required air supply (and extraction) to all heat producing appliances shall be provided in strict accordance with Part J 2014 of the Building Regulations

Fresh air will be required for gas appliances and this is to be reviewed on site on a case by case basis, but if required are to be located at low level as close as possible to the relevant appliance.

Supply of all necessary ductwork bends and fittings

Connecting up all equipment.

Supply of fire collars at compartment walls

Hand-over to builder soaker sheet for discharge through roof tile

### DUCTWORK

Main runs	180Dia (400 model) Insulated flexible duct
Ceiling void	Hard flexible 75dia (outer) (63dia inner) duct from plenums to grilles

### EXTRACT GRILLES

Make	CMEV
Model	
Extract	125 dia grilles
Toilets - Dry (Boost extract)	6 l/s minimum extract
Bathrooms and Utility (Boost extract)	8 l/s minimum extract
Kitchen (Boost extract)	13 l/s minimum extract

### KITCHEN COOKER HOOD

#### REF: EF-1

Make

By others

Model

By others

Air Flow Rate

60 l/s intermittent

Local extract from cooker hoods will be run in rigid 150mm diameter ductwork to external, and will not be part of any other system.

Mechanical contractor to include for external wall grille to match Architects RAL.

## A.5 HOT, COLD AND MAINS WATER

The supply delivery and installation of a complete water services installation.  
Mains water below ground shall be heavy gauge uPVC (Blue)

The mains water will be looped from the plant room, through the kitchen and back to the water tank.  
The mains will rise under the kitchen sink.  
The branch to the kitchen is to have valve loop to allow the retro-fitting of a water softener.

There will be the following water storage:-

Main one-piece water tank, Format 30

The system will be boosted. This shall comprise a :-

Water boosting will be provided by a constant pressure variable flow pump  
The booster pump shall be complete with duty / assist function.  
The booster set shall have a run / standby facility,  
Provide a ¼ turn / NRV emergency by-pass from the mains.

The system will be chlorinated before connection to the mains and tested and certified by an independent agency.

A Hot Water vessel is part of the heat pump system

Water is to be run to the front and rear garden, with an allowance of garden taps as indicated on the drawings.

Hot, Cold and mains water distribution including separate toilet water supply services complete using Alupex type pipework.

At every appliance a wall fixed local isolation valve  
Is required. (inset)



The contractor shall generally provide the following supplies:-

Item	Pipe to appliance			Connection		
	Hot	Cold	Mains	Hot	Cold	Mains
Sink	22	22	22	15	15	15
Circulation	15	15	15			
Wash machine	22	22		15	15	
Circulation	15	15				
Dishwasher	22	22		15	15	
Circulation	15	15	15			
Wash hand basin	22	22		15	15	
Circulation	15	15				
Bath / Shower	22	22		22	22	
Circulation	15	15	15			
Toilet		22			15	

## COLD WATER STORAGE TANK

Make	Format 30 Horizontal Tank
Overflow connection.	300 L
Vent.	Filtered
Access panel	Filtered
Drip tray with overflow	1 No
	1 No

## COLD WATER BOOSTER

Make	As preinstalled in CWS tank
Model	
Duty	0.5 kg/s Vs 3.6 to 4.5 Bar range

## HOT WATER CIRCULATION PUMP

N/A

## GENERAL WATER

Connections to plant Valves at all plant items  
Flexible connectors to booster pumps, and rubber backed Unistrut fixings to first length of pipe.  
Control Valves Stop cocks on Mains water supplies  
Isolating valves on general water services  
Ball-o-fix valves to each sanitary fitting  
Non-Return on DHWS pump outlet (if required).  
General unistrut fixings on larger pipes, and mains  
School-board brackets on local branches.  
TMV3 mixer taps are required for local mixing at outlets

## PIPEWORK INSTALLATION, AND MATERIALS

Pipe and Fittings for the various services specified herein shall be of type, kind and ratings as specified in the following schedule, unless if otherwise indicated on the drawings or this specification.

Mains water below ground shall be heavy gauge uPVC (Blue)

Exposed pipework shall be chrome finished where visible

Insulation to all pipework, except at local drops, or exposed at low level.  
Internally inside heated envelope, Class O 12mm

External but protected, outside heated spaces, foil backed rigid section glass-fibre  
External exposed foil backed rigid section glass-fibre,

## A.6 RAIN WATER HARVESTING SYSTEM

N/A

## A.7 SOILS AND WASTES

The supply delivery and installation of a complete soils and wastes system over-ground.

Soils and wastes over-ground to all sanitary ware

Put in place and install Sanitary ware as detailed.

Supply of all necessary traps, and fittings

Connecting up soils and wastes to sanitary ware.

Supply of soil vent pipes, rise through roof

Hand-over to builder soaker sheet for SVP through tile roof

The contractor shall generally provide the following supplies:-

Sink	40 dia	1 1/2" waste
Wash machine	40 dia	1 1/2" waste
Dishwasher	40 dia	1 1/2" waste
Wash Hand basin `	32 dia	1 1/4" waste
Bath / Shower	40 dia	1 1/2" waste
Toilet	110 dia	4" waste
Floor Gully	110 dia	4" waste

## PIPEWORK

Waste pipework

Joints,

Connections to equipment

traps

Rodding

Independent vent to stub stacks

Soil vent pipe

Acoustic Wavin AS model  
socket.

item

as required by plant items.

all changes of direction

35 dia

110 dia

The riser shall vent to atmosphere  
above gutter level,

## DRAINS / OVERFLOWS

Safety valve pressurised cylinders

Safety valve Heat pump

Over flows

Condensate Drains

Heat pumps

Copper

Copper

PVC

PVC

Plastic High temperature

## SANITARY WARE

By Others.

Chrome Bottle traps may be used on wash hand basins where the trap is exposed.

Resealing traps may not be used without the approval of the Engineer.

## A.8 GAS

N/A

## A.9 CONTROLS

The building will be wired by the electrician for wire thermostats using 8x1.0sq, or Cat 5 if the stats are changed to electronic type

All control equipment including valves etc are all to be part of the mechanical contract.

Include for all clocks including hot water circulation etc

The heat recovery unit and all other controls are to be located in accessible locations.

The basic heating controls will be

Heat pump to be supplied with weather compensation and hot water priority controls Inc. all reqd. sensors.

The heat pump requires:-

Outdoor sensor  
Indoor sensor  
Cylinder sensor  
Web access  
Indoor controller

The heating system comprises underfloor heating and cylinder.

Manifold systems with local relay packs from various suppliers to actuate the heads, and send a signal to the heat pump etc

Include clocks, motorised valves and wall and cylinder stats and wiring centre

The Contractor shall be responsible for the correct positioning of all probes, control valves, damper motors, immersion 'stats', sensors, etc. in compliance with the control system manufacturer's instructions, and as described in the drawings.

The Contractor shall co-ordinate and liaise with the Electrical Contractor and the controls systems specialist, to ensure that all equipment is properly installed, adjusted and functioning correctly.

Controls for heating systems, shall be such that they make the most efficient use of heat, and user friendly.

Client instruction demo and handover upon completion.

## MAIN CONTROL SYSTEM

Include engaging specialist to install commission and set up the stats on the clients devices.

## POWER AND CONTROLS TO ALL THE PLANT ITEMS

Heat pump	1
Cold water booster	1
Heating pumps	1
Hot water circulation	1
CMEV Units	2
Motorised zone control valves allowance	as reqd.
Various Sensors and probes allowance	as reqd.
Time-clocks	4
Necessary contactors and relays	as reqd.
Cylinder temperature control system	as reqd.
Mini-thermal actuators to all radiators	
Manifolds	as reqd.

## A.10 EXTERNAL SERVICES

Provision of external water taps as per drawings in corners of the site supplied from plant room.

## A.11 PIPEWORK SYSTEMS

### HEATING AND WATER PIPEWORK

#### ALPHW Copper / Alupex

mm	Steel	Steel
12	1100	1000
20	1600	1400
25	1900	1700
32	1900	1700
40	2300	2000
50	2300	2000

Mains  
Local Branches

Unistrut fixings larger pipes /  
School-board brackets.

### CONNECTIONS TO PLANT

Connections to plant

Valves at all plant items  
Flexible connectors to pumps

Control Valves

Stop cocks on water supplies,  
Strainers before main  
pumps,  
Isolating valves on water services,

Ball-o-fix valves

At all draw off points and to each  
sanitary fittings

General

Unistrut fixings larger pipes / mains,  
School-board brackets local Branch.

Generally arrange and install all piping, straight, plumb, and as direct as possible.

No pipework shall be installed directly into the ground unless installed in accordance with the manufacturers' specific instruction, and the material is Agremont approved for this use.

No pipes are allowed to be installed within stud-work

All horizontal hot, cold, first aid hose reels and mains water pipework shall be graded in a universal slope to low points, so they may be drained.

Under 65mm Gate (Isolating and Lockshield)

Screwed Class 125 Bronze Body,  
Non-rising Stem.

65mm and Over Gate (Isolating)

Flanged Class 100 Cast Iron  
Body, Bronze Trim, Non-Rising  
Stem.

Under 65mm Check (Non-Return) Screwed

Class 150 Bronze Swing Check.

65mm and Over Check (Non-Return) Flanged

Class 125 Cast Iron Swing Check.

Under 50mm Regulating, with fixed orifice

Screwed

50mm and Over Globe (Balancing) with fixed Orifice Flanged

Cast Iron,

Natural Gas,	Stainless Steel Ball Type
Mains Water	Stopcock
Thermostatic Radiator Valves	Angle valve with built-in Sensor or equivalent
Hose Connection / Draw-Off Cock	draw-off cock with hose union

## WATER PIPEWORK

Water pipework Distribution in floors, (no joints) Agremont approved.	copper in Utility room Unipepe / Allupex pipe in pipe
Mains water below ground	heavy gauge hydrodare
Exposed pipework	chrome finished where visible

## SOILS AND WASTES

Waste pipework Joints, Connections to equipment traps Rodding Independent vent to stub stacks Soil vent pipe Waste from steam ovens, Independent vent to stub stacks Soil vent pipe	uPVC / Black. socket. item as required by plant items. all changes of direction 35 dia 110 dia 2.0m of copper, Then high 35 dia 110 dia The riser shall vent to atmosphere above gutter level,
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## DRAINS (CONDENSE) / OVERFLOWS

Condense discharge A/C units etc Pumped condense Rise to tundish connection Heat Pump	28 dia copper 28 dia copper 18mm braided hose 600mm above horizontal 32 dia waste High temp plastic To before in line trap from other appliance, or to external gulley
Heat recovery unit	32 dia waste High temp plastic To before in line trap from other appliance, or to external gulley
Safety valve pressurised cylinders Safety valve Heat pump Over flows Heat pumps	Copper Copper Plastic High temperature

## SOILS AND WASTES PIPE SUPPORTS

Nominal bore	Vertical Spacing	Horizontal Spacing
mm	uPVC	uPVC
20	1600	1600
25	1900	1900
32	1900	1900
42	1900	2300

50	1900	2300
Mains Local Branches	Unistrut fixings larger pipes /, Unistrut straps.	
Longer drop rods, (300 and longer) bracing required		lateral & in-line cross

## A.12 INSULATION

Under the new building regulations, the minimum insulation **MUST** be applied to all primary pipework and any distribution pipework, not in the space which it serves. This insulation is to be the **SAME** thickness as the diameter of the pipe; **not** the 9mm Armoflex that used to be acceptable. **When in doubt clarification MUST be sought.**

All pipework (unless used as heating surface), is to be insulated. Any pipe likely to cause condensation damage is to be insulated.

Only after the successful testing of all pipe work may insulation be applied to any pipe. In commercial areas the insulation shall be banded at 450 mm centres and labelled at 3 m intervals to indicate pipe contents and direction of flow.

Pipes to be insulated: water vapour permeance and Building Regulations Class 0 definition. Fixing to be in accordance with manufacturer's instructions, by peeling protective tape from self-adhesive lap and pressing lap smoothly over joint. Where adjacent Sections abut, with foil back insulation approved 75 mm wide aluminium tape to be used to maintain integrity of the vapour barrier.

SERVICE	PIPE SIZE	INSULATION THICK
LPHW /CHW/HWS/CWS	15mm – 35mm	same size as pipe diameter
LPHW /CHW/HWS/CWS	42mm – 76mm	40mm
CHW/CWS	15mm	15mm
CHW/CWS	22mm – 54mm	same size as pipe diameter up to
40mm. Above 40mm – use 40mm		
CHW/CWS	Flat Surfaces 63mm	

Insulation to have thermal conductivity of 0.031 W/mK at 100°C

CHW/CWS Insulation to be complete with Vapour Barrier

Insulation generally to all pipework, except at local drops, or exposed at low level.

Insulation Internally Foil backed glass fibre Class O,

## HEATING AND WATER PIPEWORK INSULATION

	all pipework, except at local drops, or exposed at low level.
Internally inside heated envelope concealed	Class O armoflex 20mm min, and as noted above,
Plant room	foil backed rigid section glass-fibre
External but protected, outside heated spaces,	foil backed rigid section glass-fibre
External exposed foil backed rigid section glass-fibre, wrapped in Oppanol	

## SOILS AND WASTES INSULATION

Insulation	50mm thick mesh covered 45kg Rockwool in shafts and risers & roof spaces & other unheated voids
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## A.13 TESTING AND COMMISSIONING

After completion of any pipe-work a series of tests shall be performed to ensure the integrity of the pipe-work prior to connecting up items of plant etc.

PIPEWORK	TEST TYPE	DURATION
Medium quality mild steel pipes	7 Bar Pressure	24 hours,
Water pipe-work in L.G. copper	7 Bar Pressure	24 hours.
uPVC water mains	leakage rate 2x working pressure	Less than 110 ml. per mm Bore of pipe over 24 hours
CLASS B	9.0 Bar Pressure	
CLASS C	13.5 Bar Pressure	
Water purity tests etc. on mains water pipework, which may be required by the local authority must be completed and approved by the local authority in writing.		
Soils and wastes first fix	100mm / 3 minutes	
Soils and wastes completed	38mm / 3 minutes	

### STEEL PIPE-WORK

Test Hydrostatically to one and one-half times the operating pressure or ten Bar, whichever is larger, for a period of two hours to permit a complete examination and inspection.

### HOT, COLD AND MAINS WATER

Test hydrostatically to one and one-half times the operating pressure or 7.5 Bar, whichever is larger, for a period of two hours to permit a complete examination and inspection.

### SOILS AND WASTES ABOVE GROUND

Test to 38mm for minimum 3 minutes at first fix, second fix and when system complete

### HEAT PUMPS

After erection on site and completion of all connections etc. to the system, a test shall be performed by a factory trained and authorised personnel. Certified copies of all the results and insurance certificates, where required, shall be forwarded to the Engineer / Clients representative. An output of not less than certified value shall be required.

## A.14 GENERAL WORKMANSHIP

Any part of the Installation, which in the opinion of the Engineers / Clients representative, does not comply with the following, shall be replaced or modified to the satisfaction of the Engineers / Clients representative, with no charge to the Purchasers.

A site compound must be set up and no plant or equipment is to be left lying around.  
Every day a full sweep up will be required before the areas are closed for the night.  
All operatives will have to follow proper current safety at work procedures.  
Hot works are to be controlled and recorded to avoid false alarms etc.

A safe working area around all welding is to be prepared and secured before the works commence  
Any floor finish and other surfaces require protection; Any damage will be repaired as part of the works.

Accessories necessary to complete the installation to be types recommended for the purpose by relevant

equipment manufacturer. In all cases the manufacturers specific requirements and recommendations must be followed, and if these differ with the specification, then this must be notified to the engineer

Pipe routes to be straight and vertical or horizontal unless shown otherwise.  
Sleeve pipes passing through masonry walls.

Formal training and handover and Man to man instructional walk-through for the client.

Good, neat, tidy and efficient workmanship by qualified tradesman and the correct use of proper tools shall also be essential for compliance with the intent of this Specification.

## A.15 MOUNTING HEIGHTS / POSITIONS

### EQUIPMENT

### HEIGHT A.F.F.L:-

Thermostats	1500 mm
Sensors	1500 mm
Wall lights	1800 mm
Ceiling lights	on logical grid
Smoke detectors	in line with lights, away from vent grilles
Break glass units	1100 mm
Sounders	Normally to be part of base
Access control keypad	1100 mm
Access camera	1500 mm (separate camera from pad)
Fob reader	1100 mm
Points in typical bedrooms	Refer to elevation drawings
General	
Sockets low level	450 mm
Sockets above worktop	150 mm above top
Sockets in disabled room	1100 mm
Cooker isolator	300 to side of appliance
Fan isolator	150 above door architrave
Plant isolator	150 to side, with conduit link to plant
TV point	450 mm / 150 mm above w/top
Data point	450 mm / 150 mm above w/top
Phone point	450 mm / 150 mm above w/top

Points will not be accepted, cut into architraves or reveals.

Distribution, and control boards	2000 to topmost switching device
Metering	1000 to 2000 affl
Industrial sockets	1100 affl, or 300 above worktop
Emergency Power Off buttons	1100 mm
Socket outlets/Data/TV/Phone	450 mm affl
Socket outlets above work-tops	150 mm above the work surface.
3-Compartment trunking	880 affl to U/S
Radiators	200 mm AFFL
Shower control	1200 mm
Shower head,	2000 mm

All heights to be re-confirmed prior to first fix

**SECTION B - CONTRACT PARTICULARS**

## **B.1 DEFINITIONS**

### **PROJECT**

Shannon Valley  
Co. Roscommon

### **CLIENT**

### **ARCHITECT**

### **STRUCTURAL**

### **QS**

## **FORM OF CONTRACT**

The form of contract will be the same form as the main contractors

The main contractor will be appointed as Project Supervisor (Construction Stage) for SHWW.

We WILL BE require Collateral Warrantees directly between the Contractor and the Client.

The build programme is 48 weeks, indicative start date beginning August 2026

The site WILL BE in occupation during the works.

The successful tenderer will be expected to commence on site with a full work-force immediately on appointment. The contracts manager and foreman shall be identified as part of this tender submission. Tenderers are required to attend site, prior to submission. Failure to attend site will be an automatic disqualification.

## **VARIATIONS**

Variations are to be priced and approved prior to any work being carried out.

A photo record of any on site changes are to be in the following format.

Photo of existing location showing works to be changed AND Photo of new location showing where the work is to move to, showing what is there already. Extract of drawing prior to the revision.

Photo of finished works location, and the original location showing clearly resolved terminations etc to make original location safe and complete.

Extract of drawing of revision

Copy of instruction, or confirmation as to who approved the changes.

## B.2 GENERAL PREAMBLE

This Schedule is NOT prepared per the Rules of a Standard Method of Measurement. It is a schedule and description of the work to be done.

The schedule does not purport to exhaustively describe each task. The precise standards of materials and workmanship, where not specified in detail, are the responsibility of the contractor to deliver to the reasonable satisfaction of the architect.

**Contractor is to take the risk** as regards Specification of work elements. The specifications and descriptions are to encompass a thorough job of top class work. That's what is to be priced for no matter whether little bits of work are spelled out in detail. The work items encompass all temporary works needed to achieve each work item: props, shuttering, scaffold, the lot.

All work necessary to carry out the refurbishment to this end is to be carried out and properly executed, whether or not any individual task to achieve such is particularly set out in the following schedule.

The architect is the arbiter of what's acceptable.

The contractor shall diligently execute the works as described in this schedule and the accompanying drawings, and in accordance with any instructions as shall be issued from time to time during the course of the works, by the employer or his agents. Report all discrepancies in information and seek instructions before executing work. Follow figured dimensions, and do not scale drawings. Check all dimensions on site before executing the work.

Where products or components are specified by proprietary name, do **not** substitute without prior approval.

All materials are to be fit for their intended purpose.

Dimensions are in *millimetres* unless otherwise indicated. 'Selected' or 'Approved' means in every case, selected or approved by CMD Consulting Engineers Ltd and the Architects.

Tendering contractors will be aware that the Building Control (Amendment) Regulations apply from 1 March 2014 and that at this time of tendering.

## B.3 FORM OF CONTRACT

The form of contract shall be: - **see above**.

The Appendix to the Articles of Agreement and Conditions of Contract will be completed as per the attached: -

If not completed defaults will apply, but clarification **MUST** be sought to clarify the position

Elements of this section are related solely to the Main Contractor,

A	Clause 1(a) - Designated Date:	REFER TO MAIN CONTRACT
B	Clause 22(b) - Percentage for Professional Fees:	REFER TO MAIN CONTRACT
C	Clause 22(b) - Cost of Site Clearance:	REFER TO MAIN CONTRACT
D	Clause 23(a)(ii) - Minimum sum for Public Liability Insurance:	REFER TO MAIN CONTRACT
E	Clause 28 - Date for possession:	REFER TO MAIN CONTRACT
F	Clause 28 & 29(a) - Date for completion:	REFER TO MAIN CONTRACT
G	Clause 29(a) - Liquidated and Ascertained Damages:	REFER TO MAIN CONTRACT
H	Clause 31 & 35(g) - Defects Liability Period:	REFER TO MAIN CONTRACT
I	Clause 35(a) - Period of interim Certificates:	REFER TO MAIN CONTRACT
J	Clause 35(a) - Time for receipt of Interim Certificates:	REFER TO MAIN CONTRACT
K	Clause 35(a) - Time for honouring Interim Certificates:	REFER TO MAIN CONTRACT
L	Clause 35(d) - Percentage of certified value retained:	5%
M	Clause 35(f) (iii) - Period of final measurement:	REFER TO MAIN CONTRACT
N	Clause 37 - Period for serving notice of Arbitration:	REFER TO MAIN CONTRACT

## B.4 PRELIMINARIES

### PRELIMINARIES

Include in price for everything shown on tender drawings, everything written in this schedule; and everything to be reasonably inferred from all those documents, as being necessary for proper and complete execution of works.

### SCOPE OF WORKS, SAFETY AND HEALTH

Co-ordinate all safety and health matters on site.

Prepare Safety Plan for safe execution of entire project. Prepare Method Statement for works presenting particular risks. Carefully read the Preliminary Safety and Health Plan and study the Site Limitations drawing, as these contain important project specific information and are not just "form" documents.

See all work people have Safe Pass certification, personal protective equipment. Allow nobody on site who does not have an up-to-date Safe Pass card. Dismiss anybody found otherwise. Use only CSCS registered scaffolding contractors and other specialist trades where required, e.g., crane operatives, banksmen, drivers.

Provide welfare facilities for operatives' use. Drying area, canteen, sanitary accommodation, hot and cold water.

Provide temporary sewage facility, service regularly.

## **SITE**

Visit and inspect site before tendering.

Ascertain any local restrictions or conditions likely to affect execution of works.

No claim will be allowed on grounds of ignorance of conditions under which works will be executed.

Include for meeting main contractor for short period every day to tell them what is to be done that day and to advise in particular of any deliveries or events which may impact on them.

Take all reasonable efforts to facilitate neighbours in their comings and goings and to minimise sound, vibration and other disturbance.

## **PRICING OF WORK**

Make no alterations or qualifications to tender documents without consent.

Price is to include for everything in documents, without qualification.

Costs of items in Detail Breakdown which the contractor leaves unpriced are deemed to be included.

Where such items are varied in quantity they will be re-measured and CMD will value the variation.

Any errors in tender received will be dealt with in accordance with the Code of Procedure for Selective Tendering,

## **CONTRACT GUARANTEE BOND**

Provide, in a wording and from a bondsman to be subject to the architect's approval, a bond from an Insurance Company in the amount of 15% of the contract sum, to cover the employer against the extra cost arising from the default of the contractor to complete the works, whether from liquidation, bankruptcy or other causes.

The bondsman will be released from his obligations 10 working days after the architect certifies Practical Completion of the contract.

## **SPECIFICATION NOTES**

This schedule of works constitutes the specification for project.

If any other specifications are required by contractor, architect will forward them on request.

No extra money will be paid for top quality finishes or anything else, it's all to be included in price and in job.

Any chances contractor takes at tender stage on quality skimping are at his own risk.

Definitions given in this schedule apply to terms, derived terms and synonyms in all documents. Interpret any near synonymous terms in light of definitions.

When required to inform, instruct, agree, confirm, or obtain approval or instructions - do so in writing. "Instructions" means - Architect's written instructions; "Approval" means - Architect's written approval.

Published versions of NSAI or IS documents, current at tender date, apply.

"Makers Recommendations" means - manufacturer's written or printed instructions or recommendations, current at tender date.

Where products or components are specified by proprietary name, do not substitute without prior approval.

No extra cost incurred will be allowed for in any such case.

Obviously this is a top-class job and in almost every case the particular product has been chosen and specified - so, don't change the product unless architect agrees.

Products are specified by co-ordinating size unless otherwise stated.

## **STATUTORY AND GENERAL OBLIGATIONS**

Comply with laws, statutory instruments and recommended practice of public agencies, relating to safety, health and welfare of work force.

Main contractor will be appointed as Project Supervisor (Construction Site).

Take entire responsibility for safe carrying out of contract works.

Carefully read Preliminary Safety and Health Plan, prepare safety plan; post plan on site, inform site staff of plan, and ensure safety plan is complied with.

Prepare method statements as indicated in Preliminary Safety and Health Plan and amend as needed in the light of unfolding experience.

Provide and maintain all necessary protective and safety clothing, headgear and equipment, for workpeople, site staff, and designers' site staff.

Take adequate precaution to prevent - personal injury and damage from fire;- nuisance from smoke, dust, rubbish and other causes;- damage and nuisance from storm, surface and subsoil matter.

Do not use site for any purpose other than carrying-out of Works.

Ensure that no damage is caused to roads and footpaths by site traffic.

Keep approaches to site clear of debris.

Protect, uphold and maintain all public and private services.

Do not interfere with their operation without prior appropriate consent.

If any damage results to same from execution of works, immediately - (1) notify Clients representative and service authority (2) make good to damage without delay to satisfaction of appropriate authority or owners.

Prevent damage to existing buildings and contents, gates, railings, walls, roads and other site features which are to be retained on or around the works.

Works are to be carried out in or around occupied premises.

Ascertain nature and times of occupation and use.

Carry out works to prevent nuisance. No radios on site.

No smoking on site.

Note restrictions on Site Limitations drawing and in PSHP.

There are time restrictions *per se* on what times during the day the works may be executed.

## **PROGRESS**

At start, prepare and submit programme bar chart to include sub-contractors.

Site Meetings will be held fortnightly.

Employer may attend site meetings for purpose of facilitating contractor in timely and safe execution and completion of contract.

Architect will take and distribute minutes.

Review programme fortnightly: Include information such as progress [particular and overall], numbers of labour force on site, indicating each work force category with exact description of their activities, materials ordered or on order [with earliest delivery dates] and memorandum of information required from Designers, and any time lost due to adverse weather.

If at any time it should appear that actual progress of Works does not conform to approved programme then produce revised programme at Architects request, showing modifications to approved programme as necessary to ensure completion of Works within Period for completion.

If for any reason which does not entitle Contractor to an extension of time, rate of progress of Works or any section, is at any time, in Architects opinion, too slow to ensure completion by prescribed time or previously extended time for completion, Architects shall so notify Contractor.

Thereupon take such steps as are necessary and as Architects approve, to expedite progress, so as to complete Works, or such section, by prescribed time or extended time.

Overtime will not be paid for under any circumstances whatsoever. If architect agrees with contractor that overtime is desirable, or may be worked, or is needed for completion: no payment will be made for same.

No act or omission or anything else by architect implies any commitment to certify overtime. Overtime payments are contractor's problem to be paid for out of contract sum.

## **INSPECTION AND PROGRESS RECORDS**

Give at least 5 working days' notice before covering up completed works

Contractor to serve Commencement Notices on HSA as required under SHWW regulations.

## **PARTICULAR RISKS AND TEMPORARY WORKS**

Provide all temporary offices, mess rooms, sanitary accommodation, and the like needed for main and sub-contract use.

Provide temporary access and protection for all specialists to access their works at all times. ALL to be included under Attendance.

Main Contractor will provide all general and special scaffolding for execution of works. Retain in position for sub-contractors' and public bodies' requirements.

## **BUILDER'S WORK**

Main Contractor will execute all builder's work in connection with work

## **WORKS GENERALLY**

Where and to extent that, materials or workmanship are not fully specified, they are to be (1) suitable for their intended purpose (2) per best building practice. This means: best practice, a top quality job.

Accurately set out works. Inform CMD when setting out is complete.

Check all dimensions, on drawings on site.

Use new products throughout. Handle, store, prepare and fix products to accord with makers' recommendations, and to prevent damage to them.

Where choice of maker or of supply source is allowed for a particular product or material, entire quantity needed to complete works to be of same type, or from same maker or source. Produce written evidence of supply sources when requested.

All workmanship to be carried out by, or under close supervision of experienced tradesmen skilled in that particular kind of work.

Make adequate provision for services, including unobstructed routes and fixings. Wherever possible, form ducts, chases and holes during construction, not by cutting.

Cutting for services to be minimum needed. Obtain prior approval of sizes and locations. No notches in joists - all holes for services to be drilled, and no matter what the difficulty.

Positions of any agreed service runs to be to Architects approval and to facilitate location for maintenance and repair.

**BEFORE THE ARCHITECT WILL CERTIFY PRACTICAL COMPLETION**

Make good all damage consequent on work. Remove all temporary markings, coverings, protective rubbish and surplus materials.

Use cleaning materials recommended by makers of product being cleaned.

Adjust, ease, lubricate moving parts to ensure efficient and easy operation.

Organise demonstration to Client management the entire works.

Organise a secondary demonstration one Month after handover to Client management the entire works. including non-technical demonstration and explanation of mechanical services, electrical services including emergency services, safe maintenance and use of fire doors and fire stopping. Answer any questions they put.

Provide "Simple Guide Handbook" as well as formal O & M manuals

**SAFETY FILE**

Within three months of Practical / Substantial Completion of Works, collect from all suppliers, prepare and submit to Architect and Engineers, Safety File in approved format, to include as-built drawings, makers' instructions and literature, and all commissioning certificates.

Note list appended to Preliminary Safety and Health Plan in this regard.

Submit and amend to Architect and Engineers approval.

If this isn't done, Final certificate and final release of moneys retained will not happen.

**PROPRIETARY PRODUCT NAMES**

Manufacturer's Names, Suppliers Names, National Standards

Where a specification or a description of a product or element of work includes a specific make or source such as a product name or manufacturers name or a suppliers name, or a National Standard, the specification or description shall be deemed to be accompanied by the words "or equivalent" notwithstanding that those exact words may not in fact accompany the name or standard. This also applies where the name or standard is accompanied by other words such as "or equal approved" or suchlike phrases.

**B.5 NEW BUILDING CONTROL ACT**

**INSPECTIONS AND REPORTING REGIME**

NO:	MILESTONE	DETAILS OF INSPECTION TO BE CARRIED OUT

1	Access for inspection	All services to be left exposed until inspected.
2	Time for inspections	We require 5 working days' notice of these opportunities.
3	Cost variations	No cost variations will be accepted for time delays or opening up for inspections if these procedures are not followed.
4	Closing up	Prior to closing up pipework, cabling, ductwork etc, in the ground, ceilings and walls etc, all tests are to be completed and sign off sheets with the tester, witness and type and duration of test recorded. We require Certificate of Compliance with the Building Regulations and relevant standards and manufacturers requirements at this stage. Stage payments will be released based on these sub-certifications.
5	Plant and equipment	Any plant or equipment completed, is to be tested and commissioned. The unit to be provided with sign off sheets with the tester, witness and type and duration of test recorded and the results achieved. We also require Certificate of Compliance with the Building Regulations and relevant standards and manufacturers requirements at this stage. Stage payments will be released based on these sub-certifications.
6	Site Staff	Records of formal qualifications of all staff employed to be issued on a monthly basis, along with what works they will carry out and where on the site. These people must be members of approved organisations, and have maintained their CPD where relevant
7	Monthly progress report	On a monthly basis a site works report in the form of an Excel Sheet, with Service, Progress, Test type, test duration, Test result and name of witness and a column for notes. This to state what work has been completed to date, and by whom. What tests have been completed and the nature and duration and results of these tests, and the names of the tester, and witness and their qualifications to do this work.
7	Monthly Sub-Certification	On a monthly basis we require an Interim Certificate confirming that the works done to that date Comply with the relevant Codes of Practice, European Standards, and the Building Regulations. This will form part of the financial claim review.
8	First fix Pipework, Heating, Water etc	Visual inspection of the Pipework systems, review issued Monthly Report and Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice.
9	First fix gas	Visual inspection of the Gas Pipework systems, review issued Monthly Report and Certifications. Confirm Gas safety equipment is installed etc. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice.
10	First fix ventilation	Visual inspection of the Ductwork systems, review issued Monthly Report and Certifications. Confirm Fire Dampers locations with respect to fire separations etc. Confirm that tests have been witnessed by an independent person.

11	Construction stage, fire alarm	Prior to commencement of the fire alarm installation, and in accordance with the requirements of the Code of Practice, a fire strategy meeting must be held comprising the designer, installer, and commissioning agent. The Client must also attend this meeting. This meeting will confirm that all parties agree the design strategy and the requirements from the Fire Certificate application have been incorporated in the proposed installation, and the commissioner will certify the system on completion as required by the Fire Certificate
12	Construction stage, Emergency Lighting	Prior to commencement of the emergency lighting installation, a strategy meeting must be held comprising the designer, installer, and commissioning agent. This meeting will confirm that all parties agree the design strategy and the requirements from the Fire Certificate application have been incorporated in the proposed installation, and the commissioner will certify the system on completion as required by the Fire Certificate
13	First fix Electrical	Visual inspection of the Electrical systems, review issued Monthly Report and Certifications. Confirm isolation equipment etc. Confirm that any tests have been witnessed by an independent person
14	Penetrations through fire structures by M & E services.	Visual inspection of the penetrations through fire structures by M & E services and that they have been properly fire sealed, review issued Certifications, and confirmation of independent witness of works
15	Pressure testing plumbing	Attend Pipework testing. Review issued Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Building Regulations. Contractor to issue Gas test record sheets.
16	Pressure testing heating	Attend Heating Pipework testing. Review issued Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice. Contractor to issue Gas test record sheets.
17	Pressure testing gas	Attend Gas Pipework testing. Review issued Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice. Contractor to issue Gas test record sheets.
18	Second fix plumbing	Visual inspection of the Pipework systems, review issued Monthly Report and Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice. Review Issued documentation for ALL equipment installed at this stage, and ALL manufacturers Certificates. This includes all Chlorination tests by independent bodies.
Arm 19	Second fix heating	Visual inspection of the Heating systems. Check Flues and Condense Drains, valves etc, review issued Monthly Report and Certifications. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice. Review Issued documentation for ALL equipment installed at this stage, and ALL manufacturers Certificates. Confirm Heat pump efficiency tests.

20	Second fix ventilation	Visual inspection of the Ventilation systems, review issued Monthly Report and Certifications. Check connections, condense drains, dampers and controls etc. Confirm that tests have been witnessed by an independent person. Confirm and record materials used, jointing and sealing etc comply with Code of Practice. Review Issued documentation for ALL equipment installed at this stage, and ALL manufacturers Certificates. Confirm air flow rates at each grille meet or exceed the requirements of the Building Regulations.
21	Second fix Electrical	Visual inspection of the Electrical systems, review issued Monthly Report and Certifications. Confirm isolation equipment etc. Confirm that any tests have been witnessed by an independent person. Check issued test record sheets for all electrical installations, including fault loop and resistance tests etc.
22	Testing and commissioning fire alarm	Functional inspection of the Fire Alarm systems, review issued Monthly Report and Certifications. Confirm all equipment etc. Confirm that any tests have been witnessed by an independent person. Check issued test record sheets for all electrical wiring including fault loop and resistance tests etc. Confirm operation of fire control equipment matches strategy. Confirm sound level tests have been satisfactorily completed.
23	Testing and commissioning emergency lighting	Functional inspection of the Emergency lighting systems, review issued Monthly Report and Certifications. Confirm Central test equipment etc. Confirm that any tests have been witnessed by an independent person. Check light levels along escape routes and visibility and locations of Exit signs
24	Testing and commissioning controls	Functional inspection of the control systems, review issued Monthly Report and Certifications. Confirm isolation equipment etc. Confirm that any tests have been witnessed by an independent person. Check issued test record sheets for all electrical installations, including fault loop and resistance tests etc.
25	Air Tightness	Damage to air tight membranes will be checked by others, but any costs related to its repair will be recovered from the relevant contractor.
26	Photo Record	A photographic record is to be maintained of works progressed on site. This is to attach to the status and progress report. These photographs to not abdicate the Contractor from his responsibility to maintain compliance with the Building Regulations. The Photo-graphs are to be used to substantiate progress on site, record tests as they are carried out etc. Photos are to be in the form of digital photos of 3Mp resolution, set out against a reference document identifying the location of each and its orientation etc.