2. Scope of Works

The automatic water mist suppression system at Cockshutts Farm House, Simonstone will be installed to comply with BS 8458:2015. The dedicated iCO water pump to be located adjacent to or in the risk in a ventilated cupboard. The pump will be connected directly to 15mm copper water supply via a strainer and WRAS approved check valve (by others). A water storage tank is not required. We have assumed the most direct route for our pipework.

3. Project Specification

3.1. Design Overview

The proposed mist system will be designed in accordance with BS8458:2015 Fixed Fire Protection Systems – Residential and Domestic Water Mist Systems

In accordance with BS8458:2015 all areas are to be protected, however, the following areas are permitted from sprinkler protection unless required by a fire strategy or risk assessment;

- bathrooms fitted with a door and with a floor area of less than 5 m2;
- cupboards and pantries fitted with doors and with a floor area of less than 2 m2, and rooms in which the smallest dimension does not exceed 1 m, where the walls and ceilings are covered with non-combustible or limited-combustible materials;
- non-communicating, attached buildings such as garages, boiler houses, etc.;
- crawl spaces;
- uninhabited loft/roof voids;
- ceiling voids;
- external balconies permanently open to the outside.

AREA OF PROTECTION – All areas

Category / Group	Domestic Occupancy
System Type	Wet
Maximum Area of Operation	64m^2
Maximum Area per Sprinkler	16m^2

Water mist systems optimise the quantity of water used through the distribution of very small droplets to achieve maximum cooling effect. The system operates at working pressures of 10 to 100 bars to produce droplets of very small diameter at very high speed.

The fire extinguishing system uses water at high pressure as an agent and are based on principles of well-established hydraulic technology. The spray heads are designed to discharge water in the form of water mist. The tiny drops create a large effective surface area to cool the fire and surrounding volume. The high speed of the droplets means that the mist can penetrate the hot fumes and reach the combustion area.

Water spray in droplets of 700-200-micron size produces a large surface area for heat absorption. Once in contact with hot bodies and gases, these droplets turn to vapour absorbing a large quantity of heat.

The water in its vapour state occupies 1,600 times more volume than as a liquid and displaces an equivalent volume of oxygen, thus creating a smothering effect. If both the water vapour generated and the temperature in the hazard is high enough, the concentration of oxygen can fall drastically in the whole room.

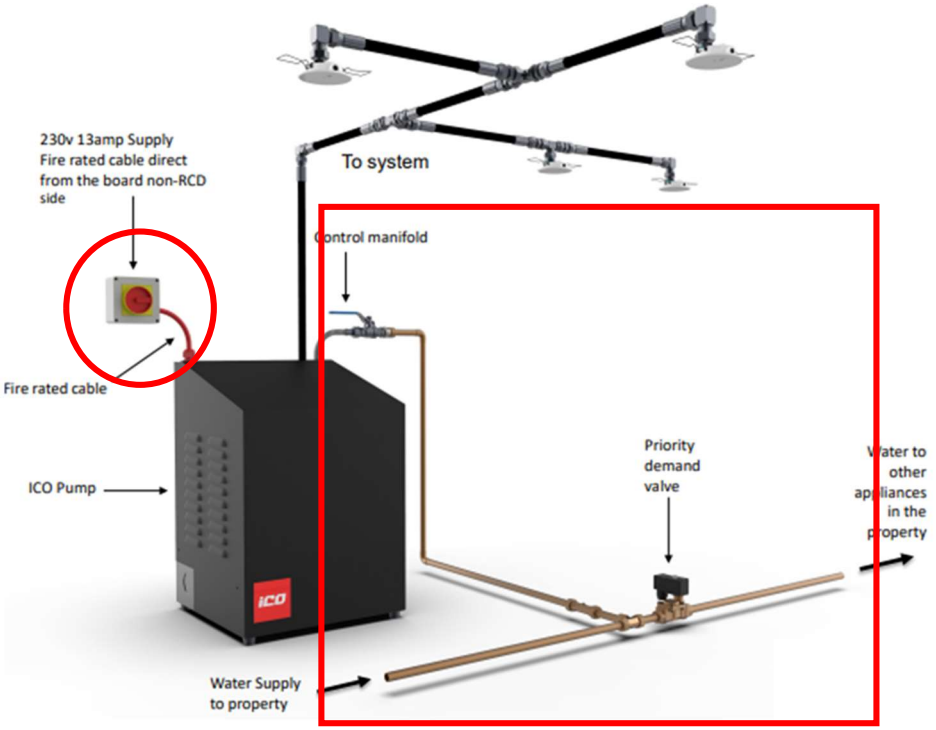
The mist cloud generated in the enclosure absorbs a large part of the radiated heat thus protecting the adjoining risks. Water mist could be classified as safe for occupants and environmentally friendly as it is only made up of water droplets. The mist fire suppression system discharges a fraction of the water normally experienced with conventional Water Sprinkler Systems and can be used safely and effectively on a wide range of risks without the fear of water discharge. The mist cloud generated in the enclosure absorbs a large part of the radiated heat thus protecting the adjoining risks.

Our offer is based upon the understanding that all necessary drawing information (building GA, RCP, sections etc.) will be available to enable us to prepare our proposal. These will be submitted to yourselves to initiate the approval process. It is your responsibility to forward to all parties having jurisdiction in this matter. Written approval must be received before any materials, equipment and/or plant are placed on order or labour committed to site. We have priced for submitting approval of our drawings once for comments, and one revision following comments to construction issue. Multiple submissions for approval may be chargeable as extra to our quotation. A final as fitted drawing package will be submitted with the O&M Manual.

Please make note of the electrical and plumbing works are to be carried out by others (unless specified otherwise). See areas in red.

Plumbing – 15mm connection (isolation valve) prior to the incoming stop valve (as image)

Electrical – 20amp (rotary isolator) adjacent the pump location in fireproof cable (FP) circuit to be fed from non RCD protection with a C type breaker.



3.2. Water Supplies

The system will comprise of a compact Pump unit to be located adjacent to or in the risk in a ventilated cupboard. The pump will be connected directly to 15mm copper water supply via a strainer and WRAS approved check valve. A water storage tank is not required.

The pump requires 230vAC 13amp power supply from an un-switched spur from a dedicated supply.

Each pump requires a minimum flow of 12ltr/min + the normal water demand for the property.

If it is not possible to achieve the required combined demand it is recommended to install a priority demand valve which will cut off the water supply to the rest of the property in the event of an activation. A priority demand valve can be supplied at an additional cost.

If the water supply pipe runs through the protected area the supply pipe to the pump should be run in copper or pipework of a similar fire and heat resistance.
If plastic pipework is used for the water supply to the pump it should be installed behind and appropriate fire resisting barrier.
Where the mains water supply connection serves both the water mist system and the domestic supply, the Water mist system should be capable of providing the water demand at the pump of 12lpm 1 bar plus at least 25 lpm. That is a total of 37lpm.
NOTE 1 Attention is drawn to the water regulations, which might require a greater minimum flow rate.
Flows should be tested and verified at the main water supply pipe to the property. Should the flow be insufficient it may be required to install a priority demand solenoid valve that in the event of a system operation will shut off the water supply to the rest of the property and divert the full available flow to the ICO pump

3.3. Pipework & Fittings

All flexible hose should be installed behind a fire rated barrier such as plaster board, any exposed pipe should be installed in stainless steel pipework. Pipework and other system components must never be exposed to temperatures below 4 °C. Flexible hose should be kept away from all heat sources such as central heating pipes or lights. Pipework, fittings and nozzles should never come into contact with any other services.

Flexible Hydraulic Hoses will be provided in accordance with the specifications below.

Hose – 3/8” Thermoplastic Hose, 9.7mm internal diameter, 160bar working pressure, SAE 100 R7
Hose connection - Swaged 3/8” BSP swivel connection or Swaged 3/8” BSP male connection. (Swaged insert must not to be less than 5mm internal diameter)
Tee or elbow fittings - 3/8” bsp male hydraulic fittings or 3/8” BSP swivel fittings. Sealed with a hydraulic gasket seal and thread lock such as Bondloc 542

3.4. Nozzles

The patented ICO nozzle is a multi-outlet stainless steel nozzle that sits flush to the ceiling. It is held into position with retaining springs which clip behind the plasterboard in a similar way to spot lights. The nozzle is small and discrete making it barely noticeable when installed.

Operation of the nozzles is by 57-degree liquid filled heat sensitive bulb. In the event of a fire the liquid in the bulb will expand and fracture the glass bulb which will allow water out of the nozzle and onto the fire. Only the nozzle nearest the fire will operate.

The nozzles to be used in this project will be of the following type

AREA	SPRINKLER DETAILS	PICTURE	NUMBER OF NOZZLES
Below Suspended Ceiling	Concealed Pendant White Finish Temp. Rating: 57°C		23no

3.5. Electrical Requirements

For the ICO pump we required;

- 240VAC power supply wired in fire-rated cable
- 16amp C Type MCB protection to be installed

3.6. Programme

We have allowed for 2no separate visits.

1. 1st fix
2. 2nd fix & commission

4. Commercial Notes

Please refer to the check list below to identify items to be provided by The Fire Suppression Company in accordance with our quotation price, and any items which are not included in our quotation price as they are specifically excluded or are to be provided by others.

TENDER CLARIFICATIONS CHECKLIST			
Description	**By The FSC**	**By Others**	**N/A**
ICO Pump			
Supply and installation of pump into cupboard	x		
Preparation of proposed area for pump to be mounted		x	
Pipework			
Concealed areas pipework finish	Thermoplastic Hose		
Exposed areas pipework finish	Braided Hose		
Electrical Works			
Power supplies to pump		x	
Monitoring of pump signals		x	
Fire alarm interfacing		x	
Earthing/grounding/bonding		x	
Commissioning	x		
Builder Work			
Cutting of holes 50mm or less (non-structural walls only)	x		
Cutting of holes in celling for nozzle	x		
Making/fitting pattresses, access hatches and making good		x	
Pipe sleeves		x	
Fire stopping between pipe and sleeve		x	
Making good through walls/floors/ceilings		x	
Decorating walls, floors and ceilings after making good		x	
General			

Welfare facilities & first aid		x	
Temporary water supplies for testing – adequate and localised to each floor		x	
Task lighting	x		
Power supply		x	
Site Security		x	
Plant & tools	x		
Access equipment – Mobile towers etc	x		
Fixed scaffolding		x	
Protection & Cleaning of works	x		
Unloading and Distribution of materials	x		

Fixed Price Contract
Our quotation is offered on a fixed price basis assuming an order will be placed by October 2024 and all work can be completed by December 2024 and is subject to any variations to the works made in accordance with the terms and conditions.

If for any reason beyond our control the contract works extend beyond the programme and/or completion date, we reserve the right to submit a claim to cover for any additional costs incurred and the cost of materials delivered to site and work executed on site after the expiry of the fixed price period will be subject to cost fluctuations calculated in accordance with the *BIS Price Adjustment Formulae Indices* (or *NEDO*) made available by the Building Cost Information Service.

Validity
Our quotation is open for acceptance for a period of 30 days from the date of this quotation.

Terms and Conditions
Our quotation is subject to mutual agreement on terms and conditions.

VAT
The quotation does not include the cost of any Value Added Tax (VAT). The amount of the VAT properly chargeable will be added to the contract sum.

Liquidated Damages
Our offer is conditional on the maximum liability for damages for delay being 1% of our contract value per week, up to a maximum total of 10%, subject to mutual agreement of any proposed program, this being the sole remedy for delay.

Delivery of Materials
In the event of you being unable to accept delivery of our material or equipment when this has been supplied or manufactured or declared ready for delivery, we shall be deemed to be able to invoice as if the materials had, in fact been delivered.

Variations to Contract Price
Variations to the accepted contract price will be commenced upon receipt of the client's written confirmation. Any variation will be priced on the same basis as the accepted contract price or agreed rates and will be invoiced/applied for as the work proceeds.

Frost Control
It is the clients responsibility to ensure that any area where our pipework is installed will be heated to a minimum of 4°C all year round.

Professional Indemnity Insurance
We confirm that we carry professional indemnity insurance to cover our design liability.

Liability
Our quotation is conditional on the following types and levels of liability:

- Liability in respect of damage to or loss of property shall be limited to direct damage caused by our negligence, breach of contract or breach of statutory duty up to a maximum sum of two times the value of our sub contract, for any one occurrence or series of occurrences arising out of one event.

- The Fire Suppression Company shall not be liable for any loss of profit or indirect, consequential, special or economic loss, cost liability, damage or expenses howsoever arising.

- Neither party limits its liability for i) death or personal injury caused by its negligence, or that of its employees, agents or subcontractors, or ii) fraud by its employees, or iii) breach of any obligation as to title implied by statute, or iv) any other act or omission, liability for which cannot be limited under applicable law.

- Liability for any other loss or damage not identified in the above howsoever caused is to be limited to a value up to the value of this [Sub-Contract Agreement] or £50,000 whichever is the lesser.

Indemnity
The Fire Suppression Company agrees to indemnify the customer against liability or loss incurred by the customer for bodily injury or property damage to the extent caused directly by the negligent act or omission of, or breach of contract by The FSC during the performance of the work, but not to the extent that the loss or liability was caused by others.

Force Majeure
Any failure by the [Contractor] or the [Employer] to perform any of its obligations by reason of any cause beyond the control of the [Contractor] or the [Employer] including without limitation, strikes, lockouts, other labour disputes, obstruction of any private or public road or highway, traffic congestion, mechanical breakdown, weather conditions, fire, flood, lightning, terrorism, shall not be deemed to be a breach of this [Contract].

Other Trades
The Fire Suppression Company will not carry out any builders works to allow install of pipework or nozzles. It is the client's responsibility to arrange for a builder on site to make any access hatches/hole for our installers to access loft space

Terms of payment

- 30% deposit upon acceptance of quote.
- 30% on completion of 1st fix
- 40% on completion of commission
- Final date for payment shall be 7 days after completion of job (certification will not be issued until final balance has been cleared)
- The Purchaser shall pay the price on the dates specified in the invoice.
- If the Purchaser fails to make any payment on the final date for payment: The Purchaser shall pay interest to the Seller on any overdue amount, to run from the final date for payment until receipt by the Seller of the full amount.
- The entire balance outstanding on all invoices from the Seller to the Purchaser shall become payable in full to the Seller immediately without further demand, despite any provisions to the contrary and any invoice or otherwise; and the Seller may, without prejudice to any other right or remedy available to it and after giving 7 days written notice of intention:
  - Delay or withdraw labour from site, or cancel any or all orders and/or contracts,
  - Retain any amount already paid to it by the Purchaser
  - Inspect, repossess and/or sell the equipment supplied to the purchaser for that purpose, with or without permission.
  - We have the right to remove equipment from site after 60 days if the final account is not paid.
- These rights shall continue after and despite the termination for any reason of any contract and without prejudice to any accrued rights of the Seller under such contract.

Drawings

Drawings provided by Danielle Arkwright at D C Architectural Design on Thursday 26th September 2024