

# **INFRARED HEATING PROPOSAL** FOR GOADBY MARWOOD VILLAGE HALL



Presented to:

# **Denise Kitson**

Prepared by: **Steve Parker** Strictly Private and Confidential

3<sup>rd</sup> November 2023

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"A 20% reduction in energy use equates to a 5% increase in sales" (source: Carbon Trust)

























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# 1 PROJECT OVERVIEW

#### 1.1 BACKGROUND

The Trustees of Goadby Marwood Village Hall in Leicestershire, LE14 4LN have asked ARC Thermal Products to specify an infrared heating system for the building to replace the outdated heating and improve the level of thermal comfort.

This proposal is for the specification, supply and installation of a SMART energy efficient infrared heating system. Alternatively, if you decide to use your own electrician, we will happily work on a 'supply only' basis and support them as required through our technical helpline.

#### 1.2 RECOMMENDED INFRARED HEATING AND CONTROLS

We recommend the use of ETHERMA EZ medium-wave infrared heaters (Section 3.1) in the Main Hall with a high ceiling of 6.74m. We recommend mounting the infrared heaters on the walls using brackets at the height of the eaves, approximately 3.4m. This will prevent any accidental damage whilst ensuring optimum distribution of heating throughout the space, avoid cold spots and keep the floor space free for seating and activities.

Precise control of the heating saves operating costs, avoids wasting valuable energy and improves thermal comfort for the occupants. To this end, the heating in each zone will be controlled by a wall-mounted wireless thermostat (Section 3.2).

Occupants can regulate the room temperature via the room thermostat (and any changes made will apply until the next scheduled programme change) but overall control remains with the system administrator. There is also an option to 'lock' the room thermostat to prevent unauthorised user intervention. Being a wireless system, it simplifies the installation process and allows a modular approach with the ability to phase the project or add additional heating zones in the future.

Accurately controlling the system by time and temperature will ensure the system is as efficient as possible and be compliant with Ecodesign regulations. Under LOT 20 legislation new heating systems must be controlled by time and temperature to prevent the wasting of energy.

#### 1.2.1 Heating Specification

This heating specification is designed to achieve a total temperature rise of 25°C (based on -5°C external temp to 20°C internal temp). In adverse conditions, when the external temperature is less than -5°C, the heating warm-up time will increase. You will however still feel the benefit of the infrared, making you feel warmer than the ambient temperature in the room. If you require to cover all adverse external temperatures the heating specification may need to be increased.

As we have not been provided with the exact U-values of the building structure, our heat modelling calculations are based on the U-values in Table 1 below.



**Table 1: Building structure assumptions** 

Structure	Material	Assumed U-Value	
Roof/ceiling structure	Tiled roof with boarded ceiling, uninsulated	2.51	
Outer Walls	550mm solid stone, uninsulated	1.68	
Floor	Wooden suspended, uninsulated	1.75	
Windows	Single glazed	4.80	
Doors	External, solid timber	1.40	

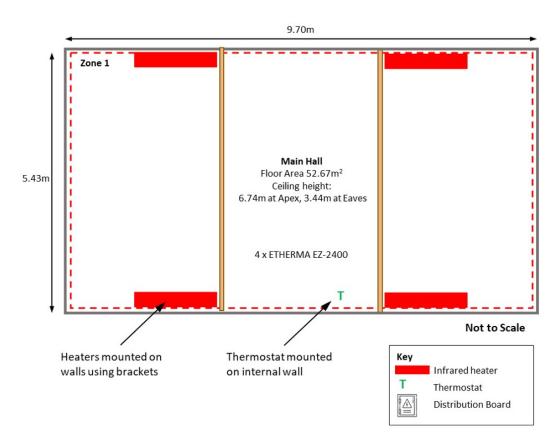
Note: The U-values are based on the building information provided and as such ARC cannot guarantee they are completely accurate.

Table 2 below summarises the type and number of infrared heaters required along with the associated controls.

Table 2: Infrared heating zones, heating products and controls

Room	Zone	Product	Units	Controls
Main Hall 1		ETHERMA EZ-2400	4	SMART wireless controls

Figure 1: Proposed Infrared heating layout



### 1.3 ESTIMATED RUNNING COSTS OF PROPOSED INFRARED SYSTEM

Table 3 below shows the estimated running cost of the proposed infrared heating system. During the 'Warm-up' phase, when the heating is getting the rooms to the desired temperature, it will be on continuously. Having reached the desired room temperature, the infrared heating system will only be on for approximately 20min/hour (33% on time) to maintain the temperature. On-time during the 'maintaining phase' is determined by the level of transmission losses via the building structure.



The 'warm-up' time is a function of the infrared heating capacity installed, the insulation of the building and the outside temperature. So, this will potentially vary from day to day as the external temperature will determine the internal baseline temperature; and therefore, the overall temperature increase required in the building to reach the target/set temperature.

The total running costs below present a worst-case scenario, as the SMART controls allow the heating zones to be controlled individually or grouped (depending on how the rooms are used). This will ensure only those rooms being used are heated.

Table 3: Estimated hourly running cost of the infrared heating

	<u> </u>	<u> </u>	
Room	kW	Runnir	ng cost/hour
		'Warm-up' Phase	'Maintaining' Phase
Main Hall	9.6	£ 2.69	£ 0.89

Assumptions: Electricity tariff 28p/kWh, inclusive of VAT, from 1 July 2023 (Department for Energy Security & Net Zero)

The new infrared heating will also significantly improve the thermal comfort for those using the hall which is a very important but less tangible benefit.

#### 1.4 PRODUCT WARRANTY

The ETHERMA EZ infrared heaters come with a manufacturer's 2-year warranty and the controls come with a manufacturer's 5-year warranty.

# 1.5 INSTALLATION ACTIVITIES

The proposed installation will include the following:

- hire of access tower
- installation of new breakers, conduit cabling & heaters with fused spurs
- configuration and programming of new heating controls
- new installation test & certification
- handover process

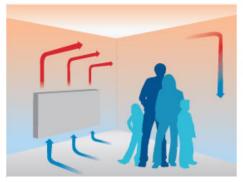
Start date: TBC – we aim start the installation within 4 weeks of receiving your order

Expected duration: 2/3 Days On-site team: 2 electricians

# 2 THE BUSINESS CASE FOR ETHERMA INFRARED HEATING

The real innovation in this heating technology lies in the energy efficient way in which it heats a room. In contrast to convection heating, Infrared heating directly warms thermal mass (ceiling, walls, furniture and people) where the energy is stored and gradually released back into the room as heat. This homogeneous heating of the room results in a pleasant environment with a constant humidity (approx. 45%) and minimal convection currents. The room air temperature can be reduced by up to 2-3°C whilst maintaining the same level of thermal comfort and the warm drier walls become better insulators and prevent condensation.





Convection heating systems can cause cold spots as well as circulate allergens



LAVA Infrared Radiant Heating works by evenly warming the fabric of the room which in return radiates heat efficiently

# Heating with ETHERMA Infrared has a number of benefits:

- ease of Installation
- maintenance free operation from a quality product
- no requirement for regular servicing
- Long life service of 20yrs +
- lower heating cost from a silent system
- better insulation walls infused with infrared are drier and therefore a better insulator
- healthier environment for asthma sufferers or others with respiratory issues
- improved peripheral circulation resulting from infrared directly warming the body

# 2.1 BUSINESS BENEFITS

- sustainability benefits (reduced CO<sub>2</sub> emissions (zero emissions at point of use), 100% recyclable)
- reduced running and maintenance costs (heating system and the building)
- superior thermal comfort = happier and healthier staff

# 2.2 COST & CO<sub>2</sub> SAVINGS

Heating cost savings of approx. 30% are achieved against convection heaters:

- 1. ETHERMA Infrared requires approx. 20% less watts/m² than convection heating to heat the same space. Heating thermal mass is more efficient than heating air as it retains the heat for longer
- 2. reduced running cost (12% from reducing the room temperature by 2 degrees as occupants are directly heated, less on-time/day (approx. 25% less) 4-5 hours/day for infrared compared with 7-8 hrs/day for convection and more accurate control)
- 3. reduced heating demand resulting from drier, better insulated walls
- 4. Maintenance and capital cost savings are determined by the current maintenance costs and the type of heaters the LAVA Infrared panel is replacing:
- 5. no annual servicing or on-going maintenance costs (saving = £ case by case)
- 6. longer equipment life expectancy of 20+ years against a standard convector heater of approx. 10 years (saving = £ case by case)
- 7. reduced building maintenance resulting from drier, better insulated walls which prevents damp/mould (saving = £ case by case)



#### 2.3 A MORE HYGIENIC ENVIRONMENT

Convection based heating systems rely on the movement of air to heat a room and this has the potential to facilitate the spread of viruses. The recommended practice of regularly opening windows to introduce fresh outside air into the room also presents a problem when it comes to convection heating. The warm air quickly escapes through the open windows leaving a cold room. This leads to uncomfortable occupants and higher energy consumption/running costs as the heaters must run continuously to replace the lost warm air.

In contrast, infrared heating does not cause air movement, but directly warms people and objects instead of heating the air. The infrared rays are absorbed by the skin, immediately creating a pleasant feeling. Walls, the floor and furniture also serve as a storage medium and gradually give off heat to the room; thus, the energy produced by an infrared heater is retained within the thermal mass of the room and not lost through the open windows.

#### 2.4 EASILY MOVABLE

The lifespan of the infrared heating panels, combined with their ease of installation, means the technology is easily relocatable should the need arise.

# 3 RECOMMENDED PRODUCTS

#### 3.1 ETHERMA EZ INFRARED HEATERS

# 3.1.1 Application

EZ model is intended for total and supplementary heating as well as protection against cold draughts from windows in environments such as, community buildings, sports halls, department stores, assembly halls, industrial premises etc.



#### 3.1.2 Comfort

Radiant heaters give a soft, pleasant heat and individual comfort can be created with spot and zone heating. They also provide excellent protection against cold draught from windows. No moving parts mean a silent system that does not cause air movements and a hygienic indoor climate is created where the spread of dust, bacteria or odours is reduced.

#### 3.1.3 Operation and economy

Radiant heaters require a minimum of maintenance. Ceiling mounting leaves the walls free and increases safety. They give instant heat, and the room temperature can be reduced with maintained comfort.

#### 3.1.4 Technical Data

Voltage: 230, 400 VOutput: 800 – 3600 W



- Max. element temp.: 290°C
- Colour, 800-2000 W: Traffic white, RAL9016
- Colour, EZ-3600 W: Anodised steel panel
- Length: EZ-1200=960mm, EZ-1600=1360mm, EZ-2000=1680mm, EZ-3600=1680mm
- Weight: EZ-1200 = 8.5kg, EZ-1600 = 11.5kg, EZ-2000 = 14kg, EZ-3600 = 20kg
- Mounting height: 3m-25m
- IP Rating: IP 44
- Permanent connection
- Certification: EC compliant



# 3.2 ET-14A PROGRAMMABLE THERMOSTAT - SIMPLER WITH RADIO

Radio-controlled thermostats avoid complex elevation and plaster work for cable routing and allow easy installation of heaters.

The wireless receivers are controlled with the radio thermostat, which can control up to 12 LAVA-F (ET-111A) radio receivers. The thermostat has a programmable week program, frost protection function, manual mode and on/OFF function



# **Product Benefits**

- Large, illuminated LCD display
- Adaptive start-up control
- 10 years autonomy with lithium batteries
- Bidirectional wireless technology
- Eco-friendly indicator
- Electric consumption (kWh) of the associated electrical heating devices
- Optional smartphone & tablet control (additional Tydom 1.0 required)

#### **Functions**

- Weekly programming
- Open window detection
- Presence indicator (with additional motion detector)
- Set of the room temperature
- Audible On/Off mode indication (buzzer)
- Display of the ambient temperature
- Holiday mode
- Automatic switch winter/summer time



# 4 QUOTATION

To: **Goadby Marwood Village Hall** Date: Friday, 03 November 2023

Ref: 2265

### **Infrared Heating System**

Items	# Units	Cost		Total
ETHERMA EZ-2400 Infrared heaters	4	£ 745.40		£2,981.60
EZ-WH wall brackets	4	£ 77.22		£ 308.88
ET-111A wireless switch	1	£ 118.53		£ 118.53
Wireless zone thermostat (14A)	1	£ 163.24		£ 163.24
Estimated Installation*	1	£ 1575.00		£1,575.00
Delivery	1	£ 85.00		£ 85.00
			Sub Total	£5,232.25
			VAT @ 20%	£1,046.46
			Total	£6,278.71

#### Notes:

### **Terms & Conditions**

- Proposal valid until 60 days from date of proposal
- Installation payment terms: 50% to confirm order, 50% on completion
- Product supply payment terms: 100% to confirm order

# Unforeseen Circumstance/Prior Work and Variations

- 1 ARC Thermal **shall NOT** be liable for any problems with the Site due to another contractor's prior work or latent conditions which are only revealed when installing the heating. ARC Thermal will only carry out any work needed to fix any such problem if it is considered necessary for satisfactory installation of the heating; and has been agreed in advance with the customer (by signing a Change Request Form). Any additional work necessary due to these circumstances is a variation to this Quotation.
- 2 The Customer shall indemnify ARC Thermal from any additional cost incurred should the Customer increase the scope of the Works and/or Goods to be provided.
- 3 Payment terms for variations shall be seven (7) days from date of invoice.

# **Acceptance to Proceed**

I agree to the quotation and agree to proceed based on the Terms and Conditions noted above and in Appendix 1.

Signed:	Position:	
Name:	Date:	

<sup>\*</sup> Installation cost will need to be confirmed following an electrical site survey and before an order is accepted.

### APPENDIX 1: ARC Energy Reduction Group Ltd - Terms & Conditions of Business

#### **FXPLANATION**

In these Terms and Conditions the following words are explained as follows:

Company ARC Energy Reduction Group Ltd - Company No. 10484012

Buyer the Person, Firm or Company for whom an order to supply goods or services is received by The Company.

Buyer Materials any Documents or other Materials and any Data or other Information provided by the Buyer relating to the goods.

Company Materials any documents or other materials and any data or other information provided by the Company relating to the goods or Services.

Conditions the Standard Terms & Conditions of sale as set out in this document, together with any special Conditions agreed in writing between the Buyer and the Company.

Contract any contract between the Company and the Buyer for the sale of goods and services.

Delivery Point the place where delivery of the goods is to take place under Condition 4.1

Goods & Services any goods (or parts thereof) and services to be supplied to the Buyer by the Company. In these Conditions references to any statue or statutory provision shall, unless the context otherwise requires, be construed as a reference to that statute or statutory provision as from time to time amended, consolidated, modified, extended, re-enacted or replaced. References to the masculine include the feminine and the neuter and to the singular include the plural and vice versa as the context requires and headings will not affect the construction of these Conditions.

#### **Application of Terms**

- These conditions apply to all the Company's Sales of Goods and Services and any variation of these Conditions and any representations about the Goods and Services shall have no effect unless expressly agreed in writing and signed by a Director of the Company
- No terms or conditions enclosed upon, delivered with or contained in the Buyer's purchase order confirmation of order or other document will form part of the Contract simply as a result of such document being referred to in the Contract.
- Each order for Goods and Services by the Buyer from the Company shall be deemed to be an offer by the Buyer to purchase Goods and Services subject to these Conditions.

  Orders should be sent by email, fax or mail and should state the Buyer's relevant order number. Verbal orders
- will be accepted but the Buyer will be responsible for any errors of description or quantity or date of delivery in goods supplied thereunder.
- No order placed by the Buyer shall be deemed to be accepted by the Company until the Company sends an Order Acknowledgement or (if earlier) the Company delivers the Goods or provides a Service to the Buyer.
- The Buyer must ensure that the terms of any order or related document are complete and accurate
- Unless otherwise stated any quotation is valid for a period of 30 days only from its date, provided that the Company has not previously withdrawn it.
- A credit limit applies to every account and will be disclosed on request or will be automatically disclosed if the Buyer's order would cause the credit limit to be exceeded.

#### Description

- The description of the Goods and Services shall be as set out in the Company's price list or proposal
- All descriptive matter and advertising issued by the Company and any descriptions or illustrations contained in the Company's documentation are issued or published for the sole purpose of giving an approximate idea of the Goods described in them. They will not form part of this Contract.
- The Buyer should always ensure that the Goods and Services ordered are suitable for the intended purpose.

#### **Delivery of Goods**

- 4.1 Unless otherwise agreed in writing by the Company delivery of the Goods shall take place at the address detailed on the Buyer's order.
- Any dates specified by the Company for delivery of the Goods are intended to be an estimate and time for delivery shall not be made of the essence by notice.
- Subject to the other provisions of these Conditions the Company will not be liable for any loss including loss of profit, loss, damages, charges or expenses caused directly or indirectly by any delay of the delivery of the Goods (even if caused by the Company's negligence) nor will any delay entitle the Buyer to cancel the
- If for any reason the Buyer will not accept delivery of any of the goods, or the Company is unable to deliver the goods on time because the Buyer has not provided appropriate instructions, documents, licences or authorisations, risk in the goods will pass to the Buyer including loss or damage caused by negligence) the Goods will be deemed to have been delivered and the Company may store the Goods until delivery whereupon the Buyer will be liable for all related costs and expenses (including without limitation storage and insurance.
- The Buyer will provide at its expense at the delivery point adequate and appropriate equipment and manual labour for unloading the goods
- The Company may deliver the Goods by instalments and each instalment shall be treated as a separate Contract so that failure to deliver or defects on one or more instalment shall not entitle the Buyer to reject the other instalments.

#### Non Delivery

- The quantity of any consignment of Goods as recorded by the Company upon despatch from the Company's place of business shall be conclusive evidence of the quantity received by the Buyer.
- The Company shall not be liable for any non-delivery of Goods even if caused by the Company's negligence unless written notice is given to the Company within 3-days of the date when the Goods would in the ordinary course of events have been received.
- Any liability of the Company for non-delivery of the Goods shall be limited to replacing the Goods within a reasonable time or issuing a credit note at the pro rate Contract rate against any invoice raised for such Goods.

#### Risk/Title

- The Goods are at the risk of the Buyer from the time of delivery
- Ownership of the Goods shall not pass to the Buyer until the Company has received in full in cash or cleared funds all sums due to it from the Buyer on any account.
- The Buyer's right to possession of the Goods shall terminate immediately if:
- 6.6.1 The Buyer has a bankruptcy order made against him or makes an arrangement or composition with his creditors or otherwise takes the benefit of any relief for insolvent debtors, or (being a budy corporate) convenes a meeting of creditors (whether formal or informal) or enters into liquidation except a solvent voluntary liquidation for the purpose of reconstruction or amalgamation or has a receiver and/or manager administrator or administrative receiver appointed of its undertaking or any part thereof or a resolution is passed or a petition presented to any Court for the winding up of the Buyer or for the granting of administration order in respect of the Buyer, or any proceedings are commenced relating to the insolvency or possible insolvency of the Buyer, or
- 6.6.2 The Buyer suffers or allows any execution, whether legal or equitable to be levied on his/it's property or obtained against him/it, or fails to observe/perform any of his/its obligations under the Contract or any other contract between the Company and the Buyer or is unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986 or the Buyer ceases to trade or
- 6.6.3 The Buyer encumbers or in any way charged any of the Goods.

#### 7 Price

- Unless otherwise agreed by the Company in writing (and except in cases of obvious error) the price for 7.1 the Goods and Services shall be the price set out in the Company's price list and/or proposal in force at the date of invoice
- Where the Company and the Buyer agree a discount in respect of the Company's prices any such discount will only apply where confirmed by the Company in writing and where payment is received from the Buyer in full within date specified on the invoice.
- The Company reserves the right, by giving notice to the Buyer to increase the price of the Goods and Services to reflect any increase in the cost to the Company which is due to any factor beyond the control of the Company any change in delivery dates or guarantees specified by the Buyer on any delay caused by the instructions of the Buyer or failure of the Buyer to provide adequate information or instructions.
- The price for the Goods shall be exclusive of any value added tax which shall be paid at the rate and in the manner for the time being provided by law.
- Carriage will be paid by the Buyer

#### **Payment**

- The payment of Goods and Services is due as specified on the quotation/invoice. Time for payment shall be of the essence.
- No payment shall be deemed to have been received until the Company has received cleared funds.
- If the Buyer fails to pay the Company any sum due pursuant to invoice the Buyer will be liable to pay interest to the Company on such sum from the due date for payment at the annual rate of 5% above the base lending rate published from time to time by the Bank of England accruing on a daily basis until payment is made whether before or after any judgement. 9

#### Quality

- The Company warrants that (subject to the other provisions of these Conditions, upon delivery, the Goods will be of satisfactory quality within the meaning of the Sale of Goods Act 1979
- The Company shall not be liable for a breach of the Warranty in Condition 9.1 unless the Buyer gives written notice of the defect to the Company and if the defect is as a result of damage in transit) to the carrier within 7 days of delivery, and the Company is given a reasonable opportunity after receiving the notice of examining such Goods and the Buyer if asked to do so by the Company) returns such Gods to the Company's place of business at the Buyer's expense for the examination to take place
- The Company shall not be liable for a breach of the Warranty in Condition 9.1 if the Buyer makes any further use of such Goods after giving notice or the defect arises because the Buyer failed to follow the Company's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods or if there are none) good trade practice, or the Buyer alters or repairs such Goods without the written consent of the Company.
- $Subject\ to\ the\ Conditions\ of\ 9.1\ and\ 9.2\ if\ any\ of\ the\ Goods\ do\ not\ conform\ to\ the\ warranty\ in\ Condition$ 9.1 the Company shall at its option repair or replace such goods (or the defective part) or refund the part of such goods at the pro rata contract price provided that, if the Company so requests, the Buyer shall, at the Buyers expense, return the Goods or the part of such Goods which is defective to the Company.
- If the Company complies with Condition 9.4 it shall have no further liability for a breach of the warranty in Condition 9.1 in respect of such Goods

#### Limitation of Liability -

Attention is drawn to the provisions of this Condition

- 10.1 Subject to Condition 9. the following provisions of this Condition 10 set out the entire financial liability of the Company including any liability for the acts or omissions of its employees, agents and subcontractors) in respect of any breach of these Conditions and any representation, statement or tortious act or omission including negligence arising under or in connection with the Contract.
- All terms implied by statute or common law (save for the conditions implied by section 12 of the Sale of Goods Act 1979) are, to the fullest extent permitted by law excluded from that Contract.
- 10.3 Nothing in these Conditions excludes or limits the liability of the Company for death or personal injury caused by the Company's negligence or for fraudulent presentation.

#### 10.4 Subject to Conditions 10.2 and 10.3

- The Company's total liability in contract tort (including negligence or breach of statutory duty, misrepresentation or otherwise arising in connection with the performance or contemplated performance of this Contract shall be limited to the price paid by the Buyer and The Company shall not be liable to the Buyer for any indirect or consequential loss or damage
- (whether for loss of profit, loss of business, depletion of goodwill otherwise) costs, expenses or other claims for consequential compensation (howsoever caused which arise out of or in connection with the Goods
- 10.5 The Buyer warrants that any installation of the goods will be performed by properly trained staff and agrees that it shall be solely responsible for any use to which the Goods are put after delivery.

# Intellectual Property

The property and any copyright or other intellectual property rights in any Company Materials shall, unless otherwise agreed in writing between the Buyer and the Company belong to the Company

#### 12 Force Maieure

The Company reserves the right to defer the date of delivery or to cancel the Contract or reduce the volume of the Goods ordered by the Buyer (without liability to the Buyer) if it is prevented from or delayed in the carrying on of its business due to circumstances beyond the reasonable control of the Company including without limitation acts of God, governmental actions, war or national emergency, riot, civil commotion, fire explosion, flood, epidemic, lock-outs, strikes or other about disputes (whether or not relating to either party's workforce), or restraints or delays affecting carriers or inability or delay in obtaining supplies of adequate or suitable materials.

- Each right or remedy of the Company under the Contract is without prejudice to any other right or remedy of the Company whether under the Contract or not.
- If any provision or part of a provision of the Contract is found by any court or other body of competent jurisdiction to be illegal invalid void, voidable, unforeseeable or unreasonable it shall be deemed severable and the remaining provisions of the Contract and the remainder of such provision shall continue in full force and effect.
- 13.3 Failure or delay by the Company in enforcing or partially enforcing any provision of the Contract will not be constituted as a waiver of any of its rights under the Contract. Any waiver by the Company of any breach of or any default under any provision of the Contract by the Buyer will not be deemed a waiver of any subsequent breach or default and will in no way affect the other terms of the Contract.
- The parties to this Contract do not intend that any term of this Contract will be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999 by any person that is not a party to it.
- The Buyer shall not be entitled to assign the Contract or any part of it without the prior written consent
- of the Company. The Company may assign the Contract or any part of it to any person, firm or company. 13.6 The formation, existence, construction, performance, validity and all aspects of the Contract shall be deemed by English Law and the parties submit to the jurisdiction of the English Courts.



#### A little bit of customer feedback...

"Our chairman consulted with you to plan a new heating scheme for the hall. You were very helpful and provided all the information that we needed. I am pleased to tell you that the system is now installed and working. Our electricians did a fine job and the result is just as we hoped. The units are neat, unobtrusive, silent and efficient. So far all of the hall users are delighted to be comfortably warm. Thank you for your advice and excellent service." ~ Secretary to Trustees, Sedgwick Village Hall. The Chairman added: "Thank you for the great product and the first-class service."

"I would like to pass on the positive feedback we have received about the new heating system in the hall. Hirers have all said how much it has improved the experience of being in the hall." ~ Sally Withey, Ellesborough Parish Hall

"Can I just express our gratitude to the two installers who worked hard and cheerfully and left the hall clean and tidy." ~ Colin Barrable, Clare Baptist Church

"Thank you for the prompt and efficient handling of our village hall infrared heating project. We are very pleased with it. Thanks again and best wishes to you and the team at ARC Thermal." ~ Denis Moore, Rendham Village Hall, Suffolk

"We love the new heating system and I think that it is brilliant. Everyone keeps warm now. The warmth generated by the ARC Thermal units feels just like the sun, first thing in the morning, when you're camping. I can programme everything via the app now!" ~ Colin Karslake, Group Scout Leader, Basingstoke Air Scouts

"The infrared heating in Credenhill Hall has been a great success. Our hall heats much quicker and to a comfortable temperature than ever before. On the back of this we have been receiving many new users of the space." ~ Paul Oliver, Secretary, Credenhill Community Hall

"We have had the heating installed and are absolutely thrilled. It is quite amazing, the old electric convector heaters had to be switched on 1.5 hours beforehand. The electrician and I just stood under the infrared heaters and within 10 minutes of being turned on we were beginning to feel warm. The amazing thing is, when we turned the heating on, the room temperature was 10°C and by the time it had got to 14.5°C it was starting to feel comfortably warm. Overall I'm very pleased with the heating. It appears to cost less to run - and there have been no complaints so far!" ~ Robert Hodge, Treasurer - Hopton Wafers Village Hall

# **ARC Thermal Products**

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