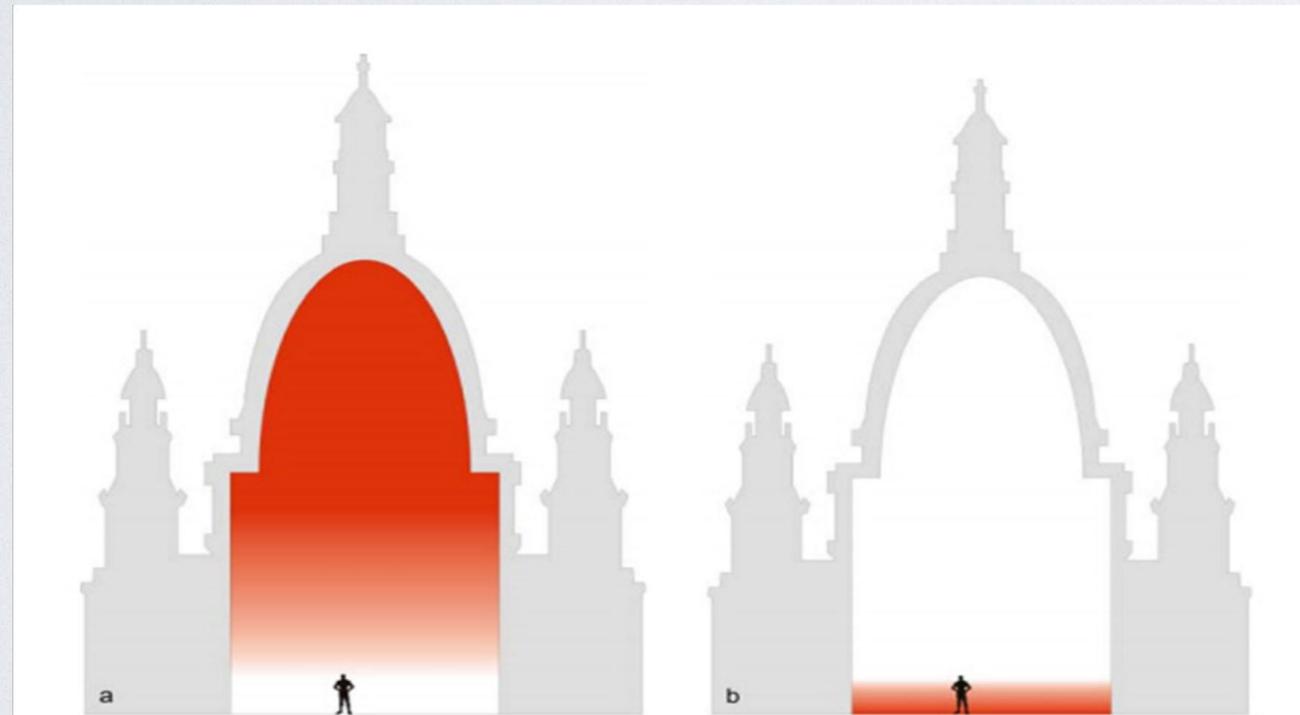


Heated seat set for pews

Patent no. EP2451317

# The problem with church heating

- High ceiling - heat rises upwards.
- Warming up the bats once a week.



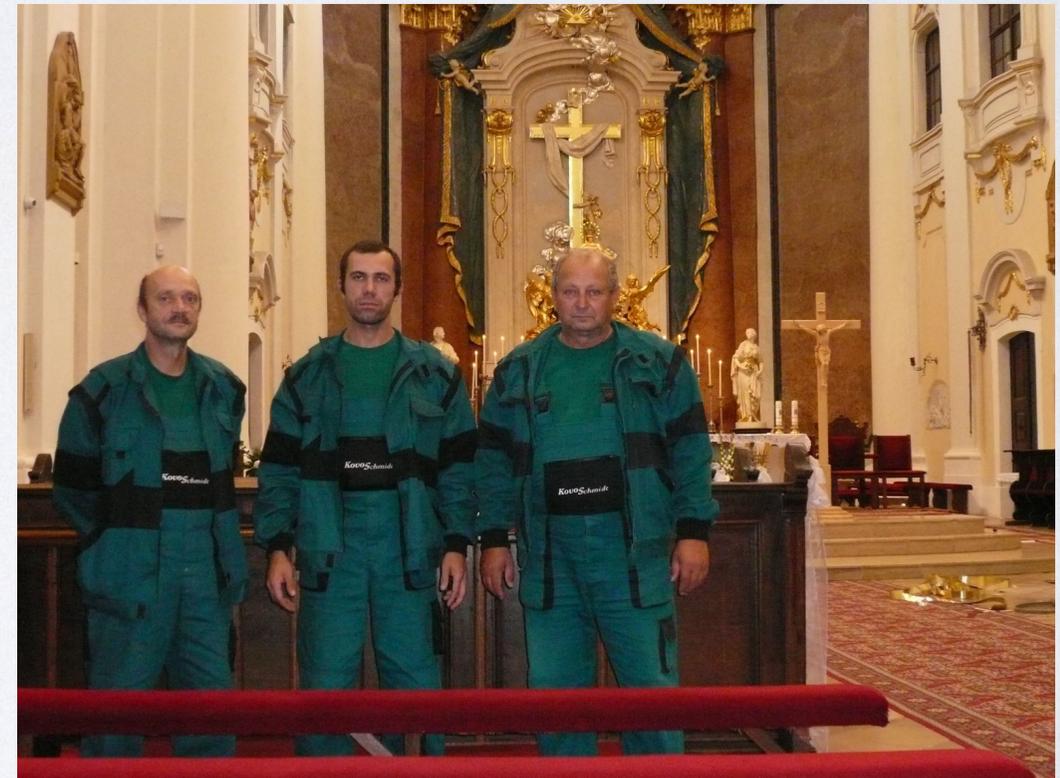
Two heating strategies: heating the whole church with warm air (a) and heating only people with local heating (b).\*

\*ref.: Camuffo and della Valle, *Church Heating: A Balance between Conservation and Thermal Comfort*

Sacred Heart Church, Hillsborough

Slovak National Basilica

- They tried different heating sources.
- Now this is the only heating source.



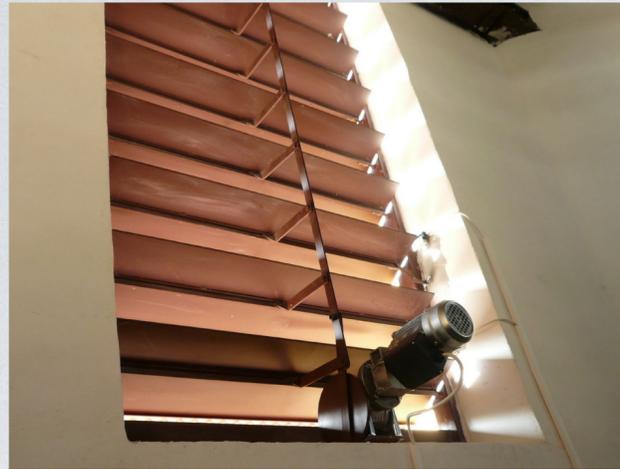
# We have developed many church products.

Conversion from electric motor to electro-magnets

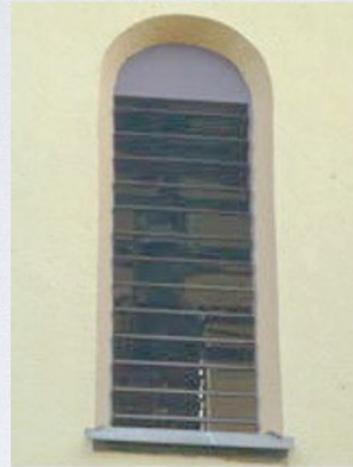


Clocks - conversion from mechanical to electric mechanism with apps



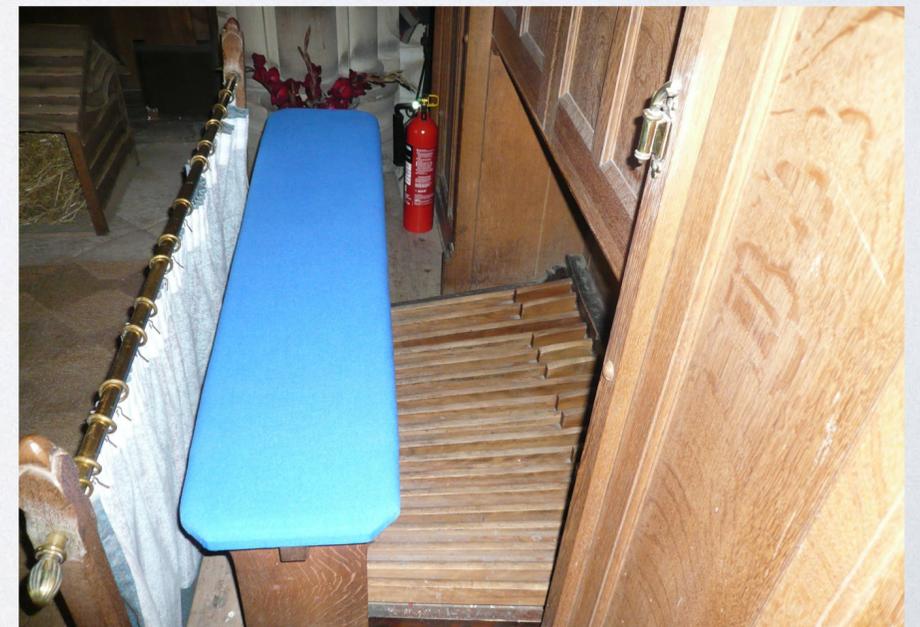


Electric window shutters



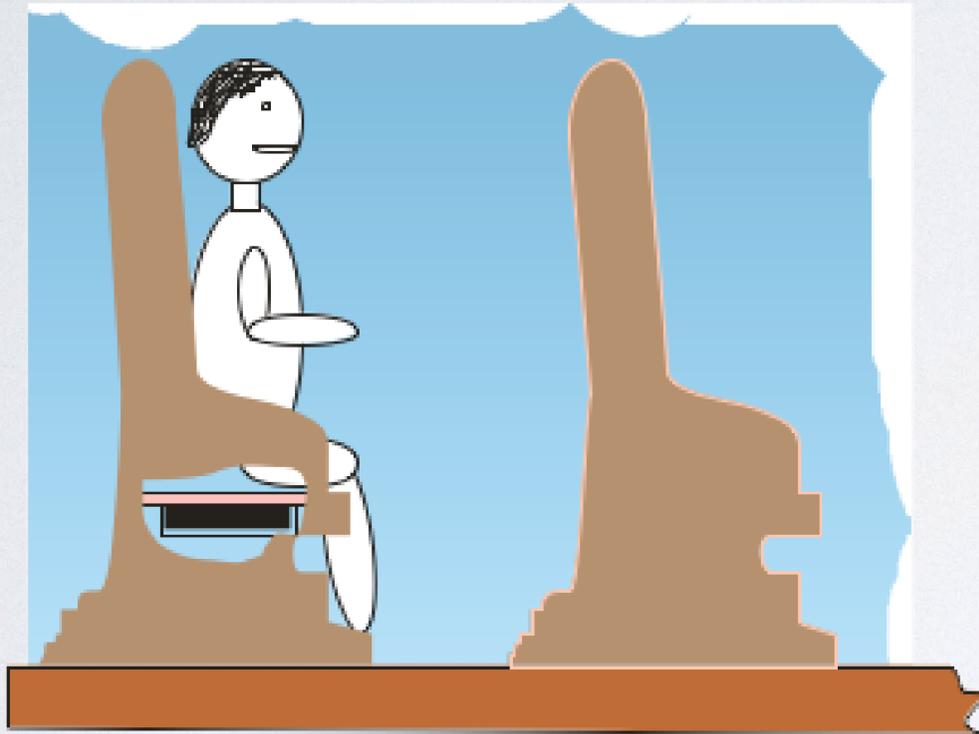
Pre-production workshop

- There are 4 types of localised church heating:
  1. Overhead heaters
  2. Under-pew heating
  3. Radiant panels (on the back of the pews)
  4. Heated seats



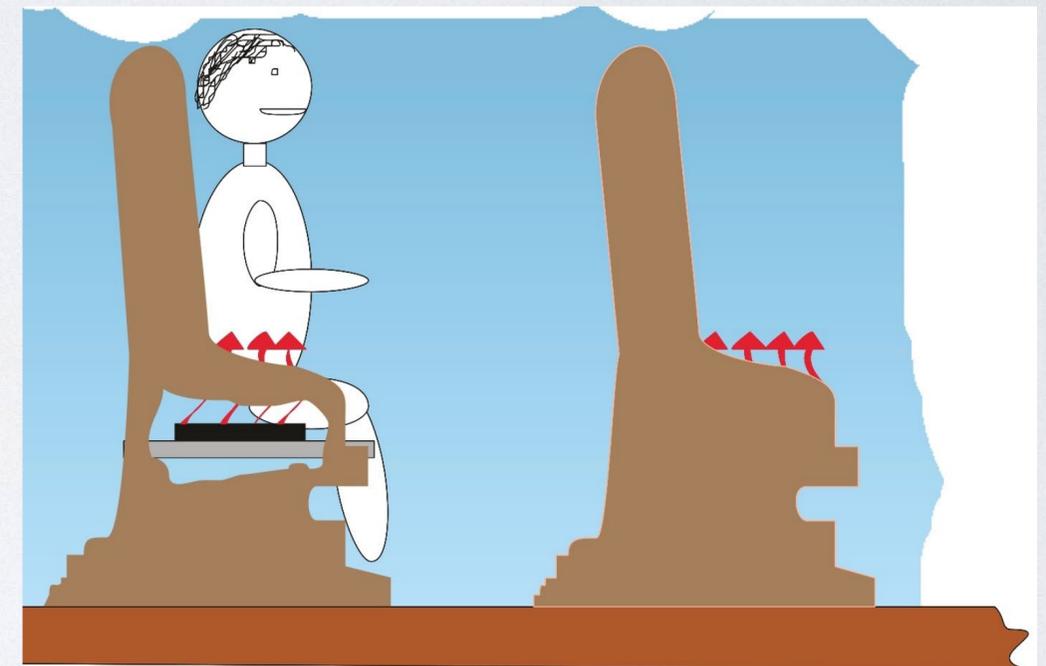
The Friendly Heating Project by the European Commission aims to preserve artwork by avoiding condensation caused by temperature fluctuation with conventional heating systems

Their solution:



- Under the sitting surface

Kovoschmidt's solution:



- On top of the sitting surface
- 230V (no transformers !!)

- From the beginning, we focused on heating the people only.

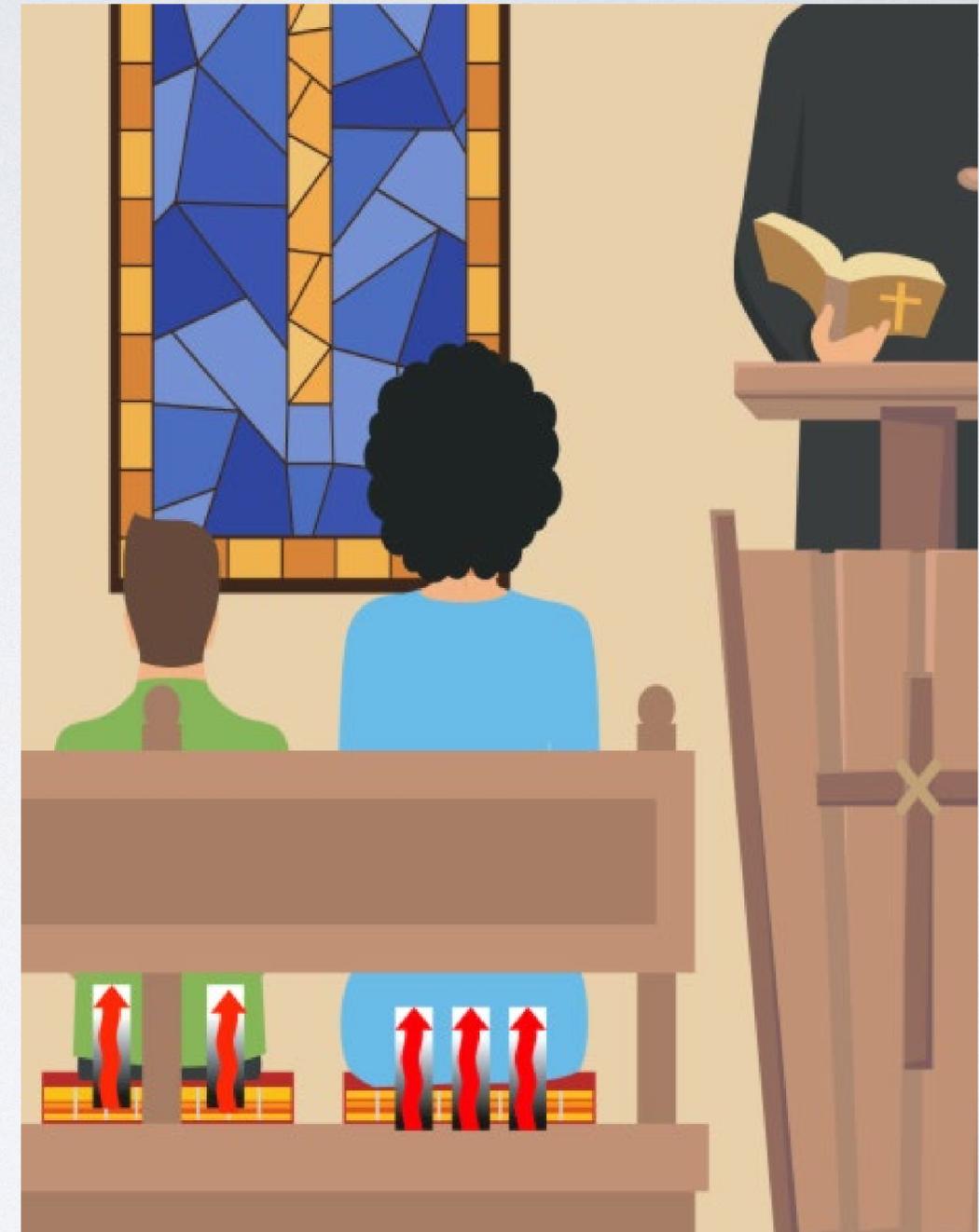
Because of green revolution, this heating has progressed.

Heat dispersal by blood circulation.

**pewheating.com**

**- we heat the person not the air!**

Our logo





# Running costs

- Average rural church - 50 metres per 100 people
- 4.5kW for the church 90 W/m
- $4.5\text{kW} \times 27 \text{ pence/ kWh} = \text{£}1.22$  per hour on max



St Giles Church, Graffham

- Typical is 74 pence per hour
- Yes, 74 pence per hour for the whole church!

Further cost reductions:

# Creating sections

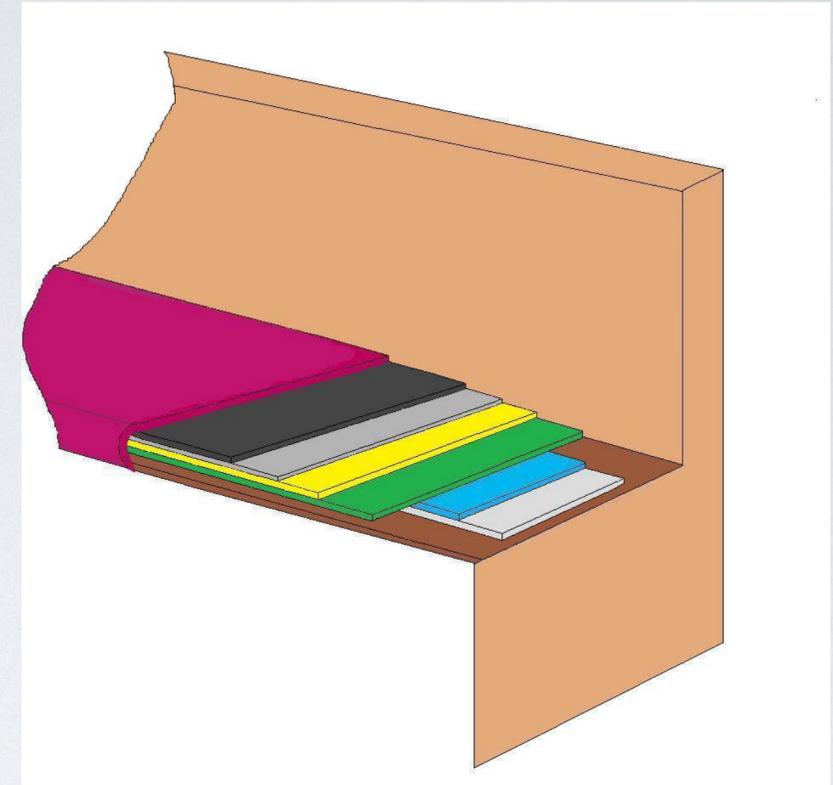
- e.g. 1/4th of the previous quoted costs - 74 pence per hour
- temperature controller
- possibility of switching off each pew



3 phase control box

# Robust design 1

- Safe - metal layers, RCD, 2 hour timer.
- Resistant to physical damage - e.g. earrings pushed into the heaters by a child or damage by a sharp object.
- Fixed connections - can not be pulled off or stolen. No loose connections after time.
- The patent is just a partial description of the product
- Why **Heated Seat Set** and not cushions?



# Robust design 2

- Resistant to water spillage - e.g. when watering flowers.
- Robust - can walk on it e.g. walking on it when watering flowers in windows.
- Fire retardant upholstery - CRIB 5 category.
- Quality UK/EU made components - 10 year warranty.



Poynings Church - leaking roof

# This is a real solution -

Additional heating can be added if needed.



Under carpet heating

1. **Heated seat set** -> creates a base for heating.

2. Other types:

- Overhead heaters (zero light)-> different heating solution for no pew areas - baptistry, altar, entrance.

- **Touch safe radiant panels** - pulpit, altar or back of the pews.



Low temperature radiant heating panel (touch safe) - mounted on the back of the altar



Overhead heater - high temperature /no light

# Pilot programme

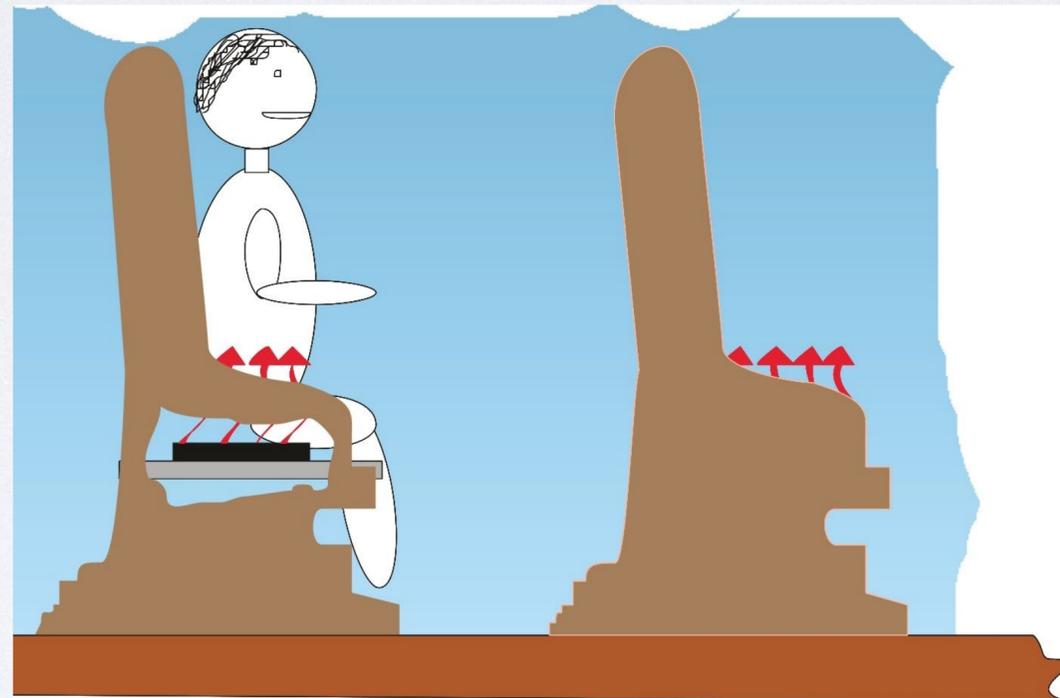
- Free trial – panels offered in addition to heated seat set.
- Heated seats were enough as a stand-alone system in the High Tatras mountain range in Slovakia.
- Well-suited to the milder UK climate.



Heated seat set with radiant panel



Probably the only church heating system that can be run by the sun (with battery backup).



# Net Zero Carbon

- One of the two winning heating systems for the Net Zero Carbon Heating Solution Framework tender by the Church of England in 2021.
- Approved contractor for Parish Buying.
- On the Church of England website.





## The best proof

- The vicar's dog was removed 3 times but still wanted to sit on the heated seat - it was a cold day in October.

Thank you!