PIG · TEMPERATURE & HEATING

The set point is a starting value. The pig is the instrument.

Five published sources, five countries — and none of them says trust the display.

The same pig, two correct temperatures

5 kg piglet lower critical temperature	eating 0.13 kg/day **30 °C**	eating 0.8 kg/day **25 °C**	**5 °C apart**
80 kg finisher lower critical temperature	eating 2.3 kg/day **15 °C**	eating 3.2 kg/day **11 °C**	**4 °C apart**
140 kg sow lower critical temperature	eating 1.8 kg/day **22 °C**	eating 6.0 kg/day **8 °C**	**14 °C apart**

Same weight. Same building. The lower critical temperature moves with feed intake, because a pig that is eating is a pig that is generating its own heat.
So a sick pen, a blocked feeder or a failed auger raises the temperature the room needs — at exactly the moment nobody has changed the set point.

The published ladder — two independent lines

PIG WEIGHT	PIC (US)	HYPOR (NL)
5–6 kg	29.4 °C	31–27 °C
8–10 kg	27.2 °C	26–24 °C
25–40 kg	21.1 °C	21–19 °C
60–105 kg	17.8–14.4 °C	18–16 °C

PIC's figures are without brooders or mats. With brooder and mats the same 5.4 kg pig is listed at 23.3 °C — a 6 °C swing at one weight, from equipment alone.
Read the ladder as a band with a reason, never as a number to dial in.

The room is not where the pig lives

SEGES worked example — partially slatted floor, cover, diffuse ventilation

	8 kg	10 kg	14 kg	18 kg	21 kg	25 kg	30 kg
Room air, °C	**22–24**	**22**	**21**	**20**	**19**	**18**	**17**
Under the cover, °C	**28**	**28**	**28**	**28**	**26**	**25**	**22**
Gap, °C	**6**	**6**	**7**	**8**	**7**	**7**	**5**

A weaner in a covered kennel sits 5–8 °C warmer than the air the controller is reading.
The sensor is not wrong. It is measuring a different place from the one the pig chose.

What the sensor can and cannot tell you

AHDB, on every temperature sensor in a pig building

“The sensors are rarely providing an exact temperature reading to the controller, and the stockperson must use their judgement as to how the pigs react to the set temperature and adjust it accordingly.”

So read the pig — SEGES gives you two signs

Huddling, piled together

Too cold. The clearest signal there is.

“Turning the pen around” — fouling the lying area

Too warm, or floor inlet above 38–40 °C.

And when you do add heat

20 W per weaner place 5 W floor + 15 W room	**40–50 W/m²** in finisher rooms — good air quality year-round	**38–40 °C** floor inlet maximum — above this, pens get fouled	**6–7 kWh** per finisher produced (SEGES StaldVent calculation)

The rule this deck is arguing for

Set the controller from the ladder. Then decide whether it is right by looking at how the pigs are lying — because feed intake, floor type, draught and bedding move the real requirement by more than the number you just typed in.

Based on SEGES Guidelines for Growing Pigs v3.2 H29 (DK) · AHDB Ventilating Pig Buildings (UK), carrying MAFF 1983 and FEC · PIC Wean-to-Finish 2019 (US) · Hypor Wean to Finish (NL) · Topigs Norsvin TN70 2023 (NL/NO), carrying Klimaatplatform Varkenshouderij 2021.

THE NUMBER THAT MOVES

A pig that eats, heats itself

MAFF (1983), via AHDB — the influence of feed level on critical temperatures

PIG	FEED / DAY	LCT	UCT
5 kg	Low — 0.13 kg	**30 °C**	**34 °C**
5 kg	High — 0.8 kg	**25 °C**	**32 °C**
80 kg	Low — 2.3 kg	**15 °C**	**29 °C**
80 kg	High — 3.2 kg	**11 °C**	**26 °C**
140 kg sow	Low — 1.8 kg	**22 °C**	**32 °C**
140 kg sow	High — 6.0 kg	**8 °C**	**25 °C**

Read the pairs, not the rows

Each pair is the same pig at the same weight. Only intake changed.
The lower critical temperature moves 5 °C at 5 kg, 4 °C at 80 kg — and 14 °C between a low-fed and a high-fed sow.

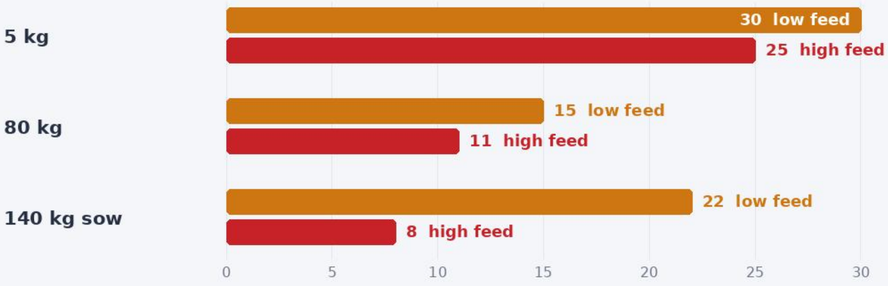
Which is why this is an alarm, not trivia

AHDB's own conclusion: when intake is restricted by illness, appetite or a broken feeding system, the air temperature requirement goes up.
Piglets have a much higher LCT after weaning, while intake is still low.
Restricted-fed finishers need it warmer than ad-lib finishers at the same weight.

The uncomfortable version

The pen that most needs extra heat is the pen that has gone off feed.
Nothing on the controller will tell you that has happened.

Lower critical temperature, °C — low feed vs high feed



Amber = restricted intake, red = high intake. Longer amber bar = a colder pig at the same weight.

The same table, read as a warning

The gap between the two bars is the heating the pig was making for itself, and stops making the day it goes off feed.

Three places this shows up every year

Weaning. Intake collapses for several days at exactly the point the pig is smallest and least insulated — which is why the weaner room is the one that gets heated.

A health break. The pen stops eating on Tuesday; the requirement rises the same day; the set point is still Monday's. The pigs get cold while the room reads correct.

Restricted feeding in finishers. A scale-fed pig has a higher lower critical temperature than an ad-lib pig of identical weight, in the same house.

What page 1 asked you to do with this

Set from the ladder, then confirm against the pigs — because this table is the reason the ladder alone cannot be right for every pen on every day.

THE LADDER

Two companies, two continents, one curve

PIC Wean-to-Finish 2019 (US) and Hypor Wean to Finish (NL), both in °C as published

WEIGHT	PIC — desired room temp.	HYPOR — at pig level
5–6 kg	29.4 °C	31–27 °C
8–10 kg	27.2 °C	26–24 °C
12–17 kg	23.9 °C	23–22 °C
17–25 kg	23.9 °C	22–21 °C
25–40 kg	21.1 °C	21–19 °C
40–60 kg	19.4 °C	19–18 °C
60–105 kg	17.8–14.4 °C	18–16 °C

Where they agree, and where they part

Through nursery and grower the two lines sit within about a degree of each other — two competitors, no reason to agree, publishing the same curve.
At finish Hypor runs 1–2 °C warmer: 18–16 °C for 60–105 kg against PIC's 15.0–14.4 °C at 85–98 kg. Treat the finish end as a band, not a setting.

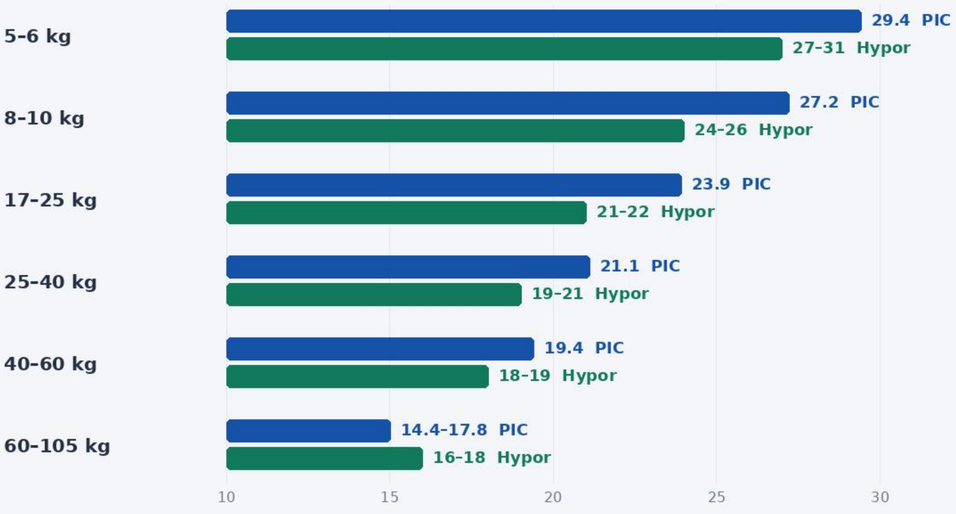
PIC's first rows carry a condition

Without brooders or mats, a 5.4 kg weaned pig is listed at 29.4 °C.
With brooder and mats, the same pig at the same weight: 23.3 °C.
A 6 °C difference decided by equipment, not by the animal.

One indexes by days on feed, one by weight

PIC's table runs on days weaned and prints the average weight alongside; the alignment above is PIC's own weight column, not our conversion. Neither figure here has been converted — both companies publish °C.

The two ladders side by side, °C



Hypor bars are drawn at the bottom of the published range; the label carries the full range.

What to take off this page

Nursery and grower: two independent sources, effectively one curve — treat it as settled.
Finish: they part by 1–2 °C, so anything inside 14–18 °C is defensible. Argue about the finish end from your own pigs, not from a manual.

BEFORE YOU TRUST THE TABLE

The pen moves the target

FEC, via AHDB — single-factor shifts in lower critical temperature

Draughty pen — Air movement strips heat off a lying pig — **+3 °C**

Low stocking density — Fewer bodies, less shared warmth — **+3.5 °C**

Restricted feeding — Less feed burned, less heat made — **+3.5 °C**

Straw bedding — The biggest single saving on the list — **−5 °C**

Kennelling — The pigs make their own microclimate — **−3 °C**

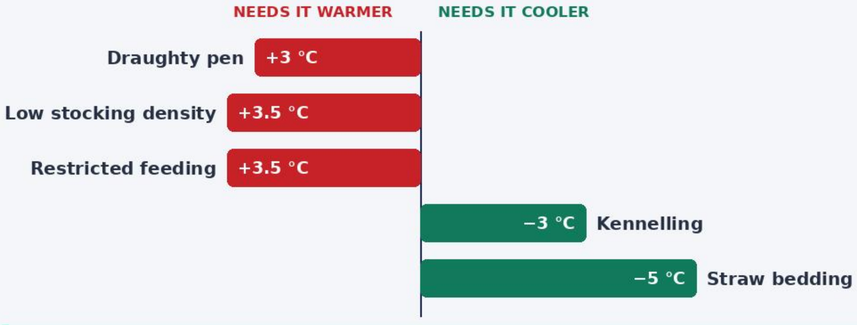
Do not add these together

The source gives them as independent single-factor effects and offers no basis for summing them. A combined figure would be ours, not MAFF's — so we don't publish one. Use them as a direction of travel: this pen is colder than the table thinks, or warmer.

What it means on a Monday morning

Two rooms in the same building, same genetics, same weight, same set point — one strawed and kennelled, one slatted and draughty — are not asking for the same temperature, and can be several degrees apart in what they actually need.

Which way each factor pushes the requirement



The one worth spending money on

Straw bedding is the largest single shift on the list at −5 °C, and it is the only one that lowers the requirement without lowering the ventilation.

Why raising the temperature is the expensive answer

AHDB's own list of reasons to sit nearer the lower critical temperature: feed intake falls as temperature rises, lying-space requirement rises with it, pigs on solid floors foul the bed as they approach the upper critical temperature, and the heating bill climbs with every degree.

And the hidden one — in cold weather a warmer room is usually achieved by throttling ventilation, which raises airborne pathogens, dust and odour. You buy the degree with air quality.

So change the pen before you change the set point

Bedding, a kennel lid, and blocking the draught move the requirement further than most people expect — and unlike heat, they cost nothing to run.

TWO DIFFERENT PLACES

The controller reads the room. The pig lies under a cover.

SEGES H29 — worked temperature strategy, partially slatted floor with cover

WEIGHT	ROOM AIR	UNDER COVER	FLOOR INLET	GAP
8 kg	22–24 °C	**28 °C**	38–40 °C	**6 °C**
10 kg	22 °C	**28 °C**	38 °C	**6 °C**
14 kg	21 °C	**28 °C**	35 °C	**7 °C**
18 kg	20 °C	**28 °C**	—	**8 °C**
21 kg	19 °C	**26 °C**	—	**7 °C**
25 kg	18 °C	**25 °C**	—	**7 °C**
30 kg	17 °C	**22 °C**	—	**5 °C**

The gap is the point

At 8 kg the pig's lying surface is held 6 °C above the air the controller sees, and the gap stays 5–8 °C right through to 30 kg. Two numbers, both correct, both needed. Judge the set point by what the pigs do under the cover, not by the room reading.

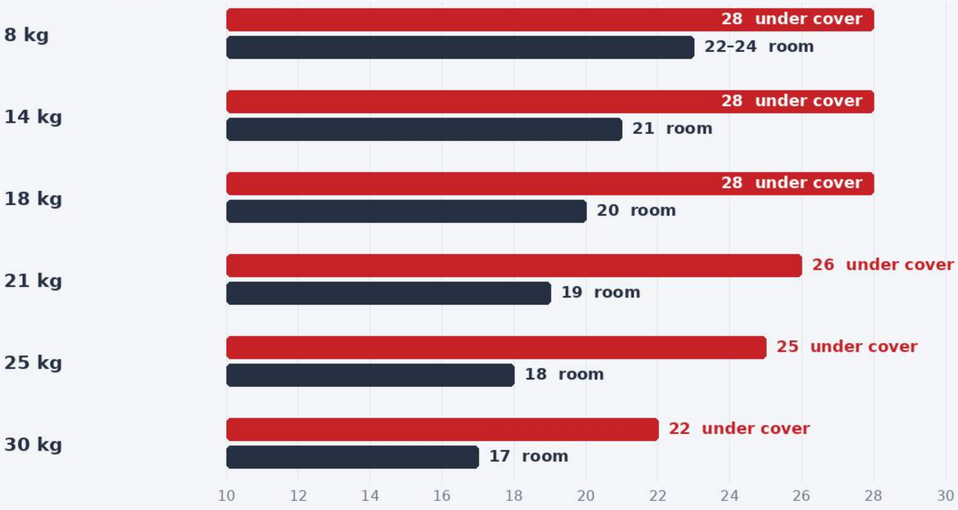
Floor heat has a hard ceiling

Inlet temperature max. 38–40 °C, and the inlet-to-reflux difference max. 3–4 °C. Run the floor hotter and the pigs “turn the pen around” — they abandon the warm lying area and dung in it. That is why floor heat cannot serve as room heat.

Where the heat source goes

Room heat under the air intake, typically along the outer wall, so incoming air is tempered before it reaches a pig. Room heating runs off the ventilation controller; floor heating is set by hand — so it is the one that gets forgotten.

Room air against the lying surface, °C



Red = the surface the pig chose. Dark = the air the controller is reading. Both are correct.

How much heat, and of what kind

Weaners: about 20 W per place — 5 W from the floor, 15 W from the room.
Finishers: 40–50 W/m² keeps air quality good all year, about 6–7 kWh per pig produced.
Finishers rarely need heat for warmth. They need it to keep the air dry.

THE INSTRUMENT PROBLEM

Why the number on the wall is an estimate

AHDB Ventilating Pig Buildings — on siting and trusting temperature sensors

AHDB, verbatim

“Temperature sensors are the most important part of any ventilation control system as they measure the actual temperature the pigs are experiencing. It can be difficult to measure this as, if the sensors are placed too near the pigs they will be damaged by them, so they are usually placed as low as possible in the building without the pigs being able to reach them… This means that the sensors are rarely providing an exact temperature reading to the controller, and the stockperson must use their judgement as to how the pigs react to the set temperature and adjust it accordingly.”

Placed at pig height

The pigs damage it.

Placed out of reach

It reads air the pigs are not lying in.

1–2 °C error

Treated as acceptable — if somebody is watching the pigs.

Mounted too high

The most common fault in poorly performing buildings.

Near a vent or heater

Reads the equipment, not the room.

This is not an argument against sensors

It is the argument the sources themselves make: a single point measurement of air cannot describe a thermal environment that changes with feed intake, floor type, draught, bedding, stocking density and where in the pen an animal chose to lie. The sensor sets the baseline. Something has to check it against the animals.

Everything one air sensor cannot see

Feed intake fell in one pen	up to 5 °C
Pen is draughty at floor level	3 °C
Straw down, or kennel lids shut	5 °C
Stocking density dropped after a pull	3.5 °C
Pigs lying under a cover, not in the room air	5–8 °C

Each of those is a real shift in what the pigs need

Every figure on this page is published, and not one of them changes the air temperature the sensor reports. The room can hold set point perfectly all week while the pigs in it are 5 °C from where they should be.

THE REAL THERMOMETER

Always look at the pigs

SEGES H29 — the two signs, and what they cost when missed

Huddling

Pigs lying piled and overlapping, seeking each other's warmth.
“A clear indication of too low temperatures.”

Turning the pen around

Pigs abandon the lying area and dung in it.
Check whether the inlet temperature is too high.

Spread out, sides not touching

Lying flat and apart, using the full lying area.
The pattern you are aiming for.

And the same logic in the sow unit

Thermal neutral zone for gestating and lactating sows: 16–22 °C. Above 25 °C, feed intake, milk production and weaning weights all fall.
Below 18 °C the cost is measurable in feed: +1 MJ NE/day at 16 °C, +2 at 14 °C, +3 at 12 °C — roughly 0.4–0.5 MJ NE for every degree lost.

Why huddling is the signal worth learning

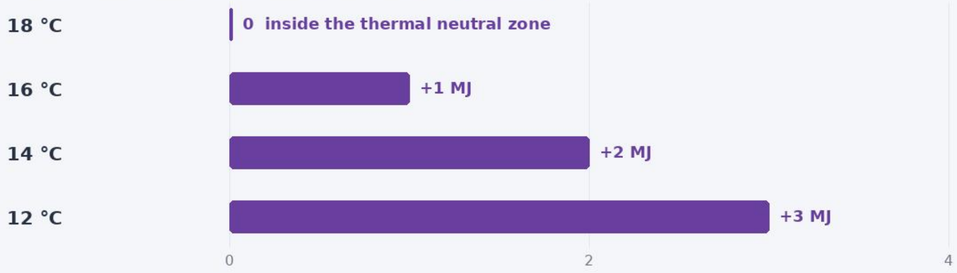
It is unambiguous, it is visible from the doorway, and it appears before anything shows up in a growth figure. It is also the one behaviour every source on this deck names independently — Danish, British, American and Dutch.

The limitation is not the signal. It is that somebody has to be standing there at the moment the pigs are doing it, and pigs lie down for most of the day and night.

Why the farrowing house is the hard one

A sow before farrowing and in early lactation puts out only 160–180 W.
In cold weather that is not enough to hold the room without cutting ventilation below a level the air can stand. Then the piglets grow, output climbs fast, and the room that was too cold on Monday is too warm by Friday.

What a cold sow unit costs in feed, MJ NE/day



Roughly 0.4–0.5 MJ NE per degree below 18 °C — Topigs Norsvin TN70, Table 25.

Save this and check one thing tomorrow

Walk one room, look at how the pigs are lying, then look at the controller.
If those two disagree, the pigs are right.

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