

Subject

The United Kingdom of Great Britain and Northern Ireland trades education is a century behind the buildings we are trying to build.

A case for updating electrical and plumbing curricula to include professional, fully wired digital controls

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To:

The Rt Hon Andy Burnham MP, Prime Minister

The Rt Hon Lucy Powell MP, Secretary of State for Education

The Rt Hon Angela Rayner MP, Secretary of State for Housing, Communities and Local Government

The Rt Hon Jonathan Reynolds MP, Secretary of State for Business, Innovation, Science and Trade

Miatta Fahnbulleh MP, Secretary of State for Energy Security and Net Zero

Shirley-Anne Somerville MSP, Cabinet Secretary for Social Justice and Housing, Scottish Government

Màiri McAllan MSP, Cabinet Secretary for Education, Culture and Gaelic, Scottish Government

Gillian Martin MSP, Cabinet Secretary for Climate Action and Rural Affairs

Anna Brychan MS, Cabinet Minister for Education and the Welsh Language, Welsh Government

Siân Gwenllïan MS, Cabinet Minister for Local Government, Housing and Planning, Welsh Government

Adam Price MS, Cabinet Minister for Enterprise, Connectivity and Energy

Michelle O'Neill MLA, Irish First Minister

Emma Little-Pengelly MLA, Irish deputy First Minister

Paul Givan MLA, Irish Minister of Education

Gordon Lyons MLA, Irish Minister for Communities

Dr Caoimhe Archibald MLA, Irish Minister for the Economy

Copied to:

Royal Institute of British Architects (RIBA)

Chartered Institute of Architectural Technologists (CIAT) Royal Institution of Chartered Surveyors (RICS)

NAPIT, NICEIC, SELECT, City and Guilds, EAL, IET, TESP, NET.

Chartered Institute of Plumbing and Heating Engineering (CIPHE)

Subject:

The United Kingdom of Great Britain and Northern Ireland trades education is a century behind the buildings we are trying to build.

A case for updating electrical and plumbing curricula to include professional, fully wired digital controls

Dear Secretaries of State, Cabinet Secretaries and Ministers of all nations,

I am writing to you jointly because the problem I want to raise sits across your departments and cannot be solved by any one of you acting alone. I am the Director of MDAR Limited, the UK distributor for a Belgian-manufactured digital building control system, I have spent over 30 years working with building controls, including training over 1,700 Further Education students and contractors in electrical installation and plumbing / heating across colleges including Derby College, Milton Keynes College and Kirklees College.

The core problem:

Trades curricula are teaching the control of electrons, not the effective control of buildings.

Current EAL and City & Guilds electrical and plumbing curricula contain only small, poorly worded sections on digital building control. Where they exist, these sections frame the subject as “smart home” technology and consumer-grade retrofit hardware, the kind of thing sold in high-street electronics shops and electrical wholesalers, not robust professional infrastructure with a history of reliability.

This framing implicitly expects electricians and plumbers to also be data engineers and radio engineers, which is not fair to them and not necessary.

Meanwhile, the core electrical and heating-control curriculum remains rooted in the same principles, the safe control of the flow of electrons, that have applied for a century.

More specifically, the same key concepts that my own grandfather delivered in the 1950s.

The core mechanical, electrical and safety skills taught currently are entirely valid and should remain the solid foundation.

What students are being trained to install is a century behind what the [Future Homes Standard](#) and [UK Net Zero](#) targets actually require.

I am proposing a strengthening of the electrical and plumbing training curriculum to better reflect what's possible, by embracing technology that is already proven in far harsher environments than a building, to empower all building owners, managers and occupants to better control their energy usage and associated costs.

A precedent from another industry: Why the car industry rewired itself in the 1990s.

We do not need to invent this shift from scratch, another entire global industry has already made it, for entirely commercial reasons.

Mercedes-Benz introduced a CAN-bus multiplex wiring system in its W140 in 1991–92, followed rapidly by BMW, Audi and Ford.

By 1996 CAN-based diagnostics (OBD-II) were mandatory in the US, and the protocol was an ISO standard (ISO 11898) by 1993.

The industry did not adopt this because customers demanded it, most drivers had never heard of CAN-bus.

It adopted it because a single low-voltage data bus radically reduced wiring complexity, weight, cost and failure points compared with a web of dedicated point-to-point wiring.

Buildings have exactly the same problem today, and exactly the same solution is sitting mostly unused.

Belgium's current approach.

Velbus, the system I distribute, is manufactured by Velleman Group in Gavere, Belgium, a company with over 50 years in electronics manufacturing and over 25 years specifically in wired building control, backed by an industry-leading warranty and, since 2023, 100% Belgian manufacture for absolute quality control.

Belgium is not waiting for this shift: wired low-voltage bus topologies, including CAN-bus systems, are already embedded directly in Belgium's national secondary attainment targets ("[Eindtermen](#)") for standard electrical installation and electrotechnical qualifications, with students taught the separation of power delivery and data (control) lines from day one.

At adult vocational level, state-recognised institutions including [CVO Groeipunt](#) and [SyntraPXL](#) run official, state-recognised modules on building automation and control, including the Velbus® system, training already-certified electricians to bring traditional schematics up to modern bus standards, aligned with [Belgium's national electrical code \(AREI\)](#).

The Flemish Government's €176 million digital infrastructure investment in 2025 (known as "[Digiplan 2025](#)") goes further still, actively steering schools and colleges toward open, robust, European-made hardware rather than leaving procurement to whichever manufacturer offers a donation.

This is what the outcome of the training and funding recognition I am asking for in this letter actually looks like in practice.

Why UK housebuilders aren't installing digital controls: There is nobody qualified to fit them.

I recently conducted an informal review of prominent new-build estates.

Of those reviewed, [only one builder](#) offered anything resembling an integrated home, and even that used classic point-to-point wiring with retrofitted digital additions, rather than a true wired digital backbone from first fix. Every other development met only the Part L minimum: two electromechanically controlled heating zones with independent timing, additional zones achieved through [TRVs](#) on individual radiators. [TRVs regulate heat emitted](#) at the radiator, they are not a building control system, and they cannot deliver the kind of whole-home, data-driven energy management the [Future Homes Standard](#) is aiming at.

Mostly the offered solution to our requests was that we instruct a local electrician to retro fit hardware to our needs.

This is not a demand problem. I met with the former technical director at Vistry Group, and the conversation went well right up until the point where I asked whether their contractors would consider a digital backbone as standard, at which point the conversation stopped.

I believe this was not resistance to the idea itself, but the simple fact that nobody within their contractor base has a working knowledge of professional CANbus-based controls. Meaning that Vistry Group could not specify what their workforce could not install.

Even Vistry Group's own solution to this is to revisit homes and retrofit wireless technology on top of a classic installation, often having to use inappropriate locations that future engineers would struggle to find during a service visit.

What a digital backbone offers for heating and cooling, and what it doesn't.

A wired digital backbone's clearest benefit for heating and cooling isn't switching individual rooms on and off completely, but rather to provide a choice of target temperatures that still meet the design needs of a system AND provide the occupant with choices for comfort and energy use, with heat pump systems in particular, aggressive room-by-room micro-zoning can work against overall system efficiency, and heating only occupied rooms can itself create the temperature gradients that lead to condensation and mold.

The stronger case is reliable, whole-home environmental sensing: temperature and humidity data from every room, continuously available to occupants, landlords and building managers, including options for prescribing how the heating and ventilation systems should respond to it.

That is directly relevant to [Awaab's Law](#), in force since October 2025, which already requires social landlords to investigate and resolve damp and mould hazards to fixed statutory timescales, a wired

backbone is what makes early, whole-property detection of those conditions practical at scale, rather than relying on a resident noticing and reporting a problem after it has already developed.

The same wired backbone that carries temperature and humidity data can carry other environmental sensors on the same infrastructure, [carbon monoxide detection](#) alongside the statutory standalone alarms required under Approved Document J, rather than replacing them, air quality, and leak detection among them, without any additional cabling run. Because every reading passes through a single documented bus, the system can maintain a persistent, timestamped log of exactly when a hazard condition was first detected and what action followed.

For a social landlord facing [Awaab's Law's](#) fixed investigation and remediation timescales, that log is not just a maintenance convenience, it is the evidence trail the law already requires them to produce, generated automatically rather than reconstructed after the fact from memory, paper records or a resident's account of when they first reported a problem.

Why building designers and architects need to understand this too, not just the installer.

The gap I've described so far is a trades-training gap. There's a second, earlier gap that makes the first one worse: Architects and building designers are specifying wiring topology at concept and spatial-coordination stage, long before an electrician is ever appointed, and if the designer doesn't know a wired digital backbone is an option, it is never on the drawing in the first place. By the time a contractor is on site, the decision has already been made for them.

This matters because a digital backbone changes what “adding a feature” means.

In a conventional point-to-point installation, every new function, an extra switch, a new zone of heating or cooling control, a light that needs to respond to multiple triggers, needs its own dedicated cable run back to each control point, decided at first-fix and effectively fixed for the life of the building.

On a bus-based system, the cabling is the same regardless of what the human interface points (switches, movement sensors etc) end up controlling: what changes is the end-device configuration, which can be specified, respecified, or expanded entirely in software.

This is exactly the shift the car industry made with CAN-bus in the 1990s, a modern car has vastly more electronically controlled functions than a 1980s car, not because it has vastly more wiring, but because new functions are added at the module and software level on the same bus.

A building designed the same way can accommodate an owner's changing needs for decades without a single wall being opened.

This is particularly applicable with the growing need for [adapted housing and inclusive buildings \(Part M\)](#), where the simple addition of a Key Fob to turn multiple lights on, is utterly unthinkable with classic wiring.

An Architect or designer who doesn't understand this doesn't just fail to specify Velbus, KNX, or any other particular system, they fail to leave room for these possibilities at all.

Retrofitting a digital backbone into a building designed around point-to-point wiring is disruptive and expensive in a way that specifying it from the outset simply isn't.

This is a design-stage decision, not an installation-stage one, and the people making it currently have no more training in it than the electricians and plumbers do.

I would ask that this letter's recommendations extend to the professional bodies and accreditation routes for architects and building designers, [RIBA](#), [CIAT](#), [RICS](#) and equivalents, to ensure their initial training and [CPD](#) frameworks include a working awareness of wired digital control principles: not to the depth an installer needs, but enough to understand why specifying a backbone at concept stage is an advantage worth designing in, and what it makes possible later that point-to-point wiring could never do.

The barrier to reaching architects, designers and installers is not just knowledge, it's cost of access.

I have tested this route directly, and the pattern is consistent enough to be worth setting out plainly. [CIAT](#) requires a paid annual membership before any [CPD](#) submission will even be considered, and each individual submission then carries its own fee on top of that. [RIBA](#) operates a similar gated submission model, at roughly three times CIAT's cost. I committed to CIAT specifically because it was the more affordable route (also targeting Technologists, rather than Architects,) and delivered a CPD submission on digital building controls through it. The return was a single enquiry, from one architectural practice, asking for the training to be delivered free of charge, at short notice. Because my own subscription has now lapsed, that CPD appears to have been archived. Separately, I have approached [NAPIT](#) to engage on exactly the training gap this letter describes, and been unable to get a hearing without first becoming a fully paid-up member.

I raise this not as a complaint about cost, but because it is the same structural problem described elsewhere in this letter, recurring one level up.

- Whether a college teaches this content depends on which manufacturer freely donates hardware.
- Whether a housebuilder's contractors ever hear about it depends on whether a technical director happens to take a meeting.
- Whether the professional and trade bodies responsible for setting standards and CPD will even engage with the subject depends on whether the person raising it has first paid for a seat at the table.
- A small independent distributor can absorb one CPD submission fee; it cannot sustain that spend at the volume needed to reach a profession at scale, and the return seen here suggests the current model isn't reliably delivering reach even for those who do pay.

None of this is any single organisation's fault in isolation, and I don't raise it to single any one of them out.

It is a pattern that runs across government, awarding bodies, professional institutes and trade registration schemes alike, and it is worth this letter's recipients knowing that pattern exists, because it is one of the reasons the skills gap described throughout this letter has persisted for as long as it has.

Why “smart home” has a poor public reputation, and why that reputation is largely justified.

The public and trade bodies’ scepticism about home automation is well earned.

At one end of the market, systems like Lutron and Crestron are excellent but priced and licensed for luxury projects only, [Lutron's own dealer documentation](#) confirms that even a fully qualified and capable electrician cannot access its commercial or residential commissioning software without costly formal dealer certification, which locks ordinary trades out of ever learning the system. At the other end, cheap consumer retrofit hardware rarely carries meaningful long-term warranty or support and is frequently abandoned by its manufacturer within a few years. Neither end of that market is what belongs in a college curriculum or a volume house-build.

I want to be clear that my argument is not “teach Velbus”.

My commercial relationship is with Velbus and I am open about that.

The case I am making to you is about the category, *not the brand*:

Colleges should teach systems that are wired (not wireless, see below), broadly and openly enough that a student can leave college and work on any manufacturer's installation, and proven over a long enough service life that a homeowner or developer can trust it.

For example, KNX is a genuinely excellent open protocol, but its cost and design complexity make it excessive for the majority of everyday residential, hotels, offices and light commercial builds and too complex for the everyday trades person to adopt.

Systems like Velbus publish their full packet and module protocol documentation openly on GitHub (github.com/velbus) specifically so that integrators and owners are never locked out of their own installations; that openness, not any single brand, is the property colleges should be selecting.

Wireless has no place in this training.

I would also urge you to ensure any curriculum update explicitly excludes wireless systems from professional/volume-build training.

Electricians and plumbers are trained to fault-find using the diagnostic skills and tools their trade teaches; continuity, voltage, signal on a physical conductor.

They are not, and should not be expected to be, radio engineers or computer network engineers.

A wired bus can be tested with the tools already in a tradesperson's bag. A wireless mesh cannot, and should it fail on a live commercial or mass-build site, nobody on site has the training to find out why.

This is not to say that Wireless options are substandard, merely that they are a “bolt on” solution*, rather than a robust and testable infrastructure that any electrician can investigate, using only the skills they learnt in college.

*These should be the case-by-case choice of upgrade installers and building owners that can take responsibility for the long term maintenance requirements that a wireless system demands.

Why cloud / internet-dependent systems are a specific liability in public buildings.

This is not a hypothetical concern. I have first-hand knowledge of an incident at St John's C of E Primary School in Blackpool, where the school's internet provider was changed from BT to Virgin Media, and the LAN connection serving the heating control system was not moved to the new router along with the rest of the network. Because the heating decision engine was located centrally at the LEA office and depended on a live network connection to read building data, it could not shut the heating down, and the school was left with a heating system it could not control for almost 9 months. I have not been able to locate a public news report of this incident; it is presented here as my own direct knowledge, not a cited public source, and you may wish to verify directly with Blackpool's local education authority before relying on it.

Whatever the precise details, the structural point stands: a heating or building-control system whose off-switch depends on an internet connection is not a control system, it is a liability. Room thermostats and safety cut-offs must be able to switch off the local heat source directly, without depending on any external network.

The college hardware problem

Most FE & private colleges rely heavily on manufacturer hardware donations, which means the donating manufacturer, not the curriculum body, not the college, and not the students' future employers, determines what hardware the next generation of tradespeople learns.

Donating manufacturers are under no obligation to ensure their hardware uses an open, documented protocol. The result is that students are trained to install systems that can only be commissioned and adjusted through that one manufacturer's own app, frequently [gated behind a pay-wall, cloud API and an internet connection](#), each a single point of failure, and a direct route back into the problem described above. [See "Hardware as a Service" {HaaS}](#)

Colleges and training centers should be encouraged, through curriculum guidance if necessary, to select training hardware on the basis of open, documented protocols and long-term proven service life, not simply on the basis of "least cost to the college".

**The tutors are willing,
but many don't feel able or safe to try.**

There's a further barrier I don't think any curriculum review will fix on its own: the confidence of the tutors already in post. Experienced FE tutors are, understandably, most comfortable teaching what they themselves were taught, often decades ago, it has worked reliably for them in the field, and they can field any question a student throws at them without hesitation. Most have never been offered, or sought out, training beyond that over the course of their career, simply because nothing has required it of them. That isn't reluctance so much as nobody ever having opened the door.

I have seen this first-hand. An experienced and well respected electrical tutor at one college was fully supportive of what I was teaching their students, but found every reason not to be in the room while I taught it, I suspect, though I can't know for certain, so that he could honestly tell a student afterwards that he hadn't been there to be asked about it himself.

At the end of one day I made a point of coaxing him in for twenty minutes of one-to-one training, away from his class and any other eyes that may have witnessed our interaction.

He understood the core concept within minutes. Not enough, by his own judgement, to teach it himself, but enough to speak to his students about it positively and encourage them towards it, rather than subconsciously steering them away from something unfamiliar.

I don't know whether this hesitation comes from tutors having previously encountered other, more complex or less reliable platforms and been put off by the experience, behaviour I have seen in other colleges and contractors too, and the same reputational problem described earlier in this letter or simply from a career spent with no encouragement or opportunity to update or expand their own skills, and therefore no exposure to this technology at all. I suspect it is mostly the latter. Either way, a curriculum change alone will not close this gap if the people being asked to deliver it don't feel able or safe to stand in front of a class and teach something they have never been shown themselves.

That isn't a hypothetical concern either. Most colleges I approach are keen to run a "train the trainer" session for an hour or so, which is an excellent start, but it's not long enough to fully inform the tutors to a point where they are confident to deliver a basic session themselves.

Evidence of scale, and evidence that it works.

I have personally trained over 1,700 FE & private students across multiple UK colleges over the last four years, at MDAR's own cost, because this content sits outside current funding recognition as "extracurricular".

Against a UK electrical apprentice cohort of approximately 10,000 students per year, that means only a small fraction of the national cohort is getting any hands-on time with professional digital building wiring, and that fraction exists only because a private distributor has chosen to fund it.

Every student I have trained understands why this saves installers and developers money and time.

What is missing is not aptitude or appetite, it is recognition by the people who set curricula and funding.

Velbus invested in three [BBC One DIYSOS](#) builds during 2025, the greatest (yet smallest) of which is the Southampton episode, which is due to air later this year.

On that build, a full digital control backbone was installed, commissioned and handed over inside the programme's famously short build window, by ordinary site electricians who had received less than three hours of training on the system beforehand.

My own aim on that build was to create a home environment that was simply a normal, well-built family home that happened to be fully accessible for the family, proving in the same project that a wired digital backbone is not just faster to install than conventional wiring, but immediately adaptable to a family's real, precise needs in a way point-to-point wiring can never be.

If every new UK home had that same backbone from first fix, it could be expanded and adapted for its occupants for decades, without ever being drastically rewired.



This is a whole-country problem, not any single failure.

I want to be clear about the spirit in which I raise all of the above. Nothing in this letter is intended to single out one college, one developer, one department or one professional body as being at fault.

The pattern I have described,

- Funding rules that don't recognise the importance of digital hardware training.
- Hardware donations that dictate curriculum.
- Contractors with no viable route to learn a system.
- Professional bodies that only source content from paid members.

is a systemic one, distributed across government, industry and the professions together.

It has persisted not because any one part of it is acting in bad faith, but because no single part of it currently has the incentive or the mandate to fix the whole picture.

That is exactly why this letter is addressed jointly to several departments, nations and governing bodies at once, rather than to one minister alone: this only gets fixed if it's treated as a shared national problem, not as somebody else's job.

What am I asking for?

I am not asking you to mandate a brand. I am asking for the following, coordinated across your departments:

1. That EAL, City & Guilds and equivalent Scottish / Welsh awarding bodies review and substantially expand their digital building controls content, moving it out of “smart home” framing and into core professional curriculum, at a depth appropriate to a wired, documented, non-radio bus protocol. To be framed as a “new normal” rather than a wholly specialised skill.
2. That funding rules for FE colleges recognise this training as core curriculum, not extracurricular activity, so that it is no longer dependent on private distributors funding it out of their own margin or specialist funding bodies needing to subsidise the courses.
3. That curriculum guidance encourages colleges to select training hardware on open-protocol, long-service-life criteria, rather than simply accepting whatever hardware is donated.
4. That Homes England, the Future Homes Standard implementation team, and equivalent bodies in Scotland, Wales and Northern Ireland engage directly with volume housebuilders, including the contractor tier, not just main board technical directors, on why a wired digital backbone is not being specified, given that the skills gap, not cost, appears to be the binding constraint.
5. That [RIBA](#), [CIAT](#), [RICS](#) and equivalent architectural and building-design professional bodies include core awareness of wired digital control principles in formal training and CPD requirements, so that buildings are designed with backbone infrastructure in mind from concept stage, rather than requiring costly retrofit later, and that these bodies review whether paid membership and per-submission fee models are limiting which parties can bring evidence-based CPD content to their members.
6. That [NAPIT](#), [NICEIC](#), [SELECT](#) and equivalent trade registration and [competent-person schemes](#) review whether engagement on curriculum and standards matters is open to industry contributors on the substance of what they are raising, rather than gated behind full paid membership.

I would welcome the opportunity to discuss any of this directly, to bring further evidence, and to make students and training materials available for your teams to see first-hand.

Velleman has also offered to host a virtual tour of their training and manufacturing facilities in [Gavere](#) for any of your officials or institutional contacts who would find that useful.

Yours sincerely,

Stuart Hanlon
Director, MDAR Limited

Co-signatories

Dominique Opsomer

Head of Velbus, Velleman Group

As a European manufacturer with over 25 years of experience in wired building automation, we fully endorse this call to modernise UK trade curricula.

In Belgium, wired low-voltage bus systems and the strict separation of power and data lines have long been embedded in the national educational standard ([Eindtermen](#)) from day one.

This foundation allows students to understand building control as professional infrastructure rather than consumer-grade gadgets. We see first-hand that when installers are equipped with these fundamental skills, it eliminates the barriers to high-volume deployment of energy-efficient housing. The modern construction sector does not need electricians to become radio or data engineers; it simply requires them to understand a physical, reliable, wired backbone.

We are proud to support this initiative and stand ready to host UK education officials for virtual or physical tours of our manufacturing and training facilities in [Gavere](#) to show what is achievable

Sam Elliot

Student @ Derby College

As someone currently working in the electrical trade and completing my NVQ, I see first-hand how quickly technology is moving while the way we are trained often struggles to keep up.

I've had the opportunity to meet Stuart and get hands-on experience with digital building controls at college, and it really opened my eyes to what is possible with modern wired systems.

It showed me that this isn't some futuristic or unrealistic idea, it is technology that electricians can learn and work with today. I genuinely believe digital building controls should become a normal part of an electrician's skill set, rather than something we only discover by chance after qualifying.

We need to embrace this change now, before outdated practices become so deeply embedded that the industry becomes unwilling or unable to adapt.

I'm supporting this letter because I want to see the next generation of electricians properly prepared for the industry they are actually going to work in, not the industry of 20 or 30 years ago.

Joe Ward

JW Electrical & Building Ltd, Cardiff

Having spent a decade building a successful electrical installation company with a turnover in excess of £3M, employing fully trained electrical experts and working on a wide range of projects, I thought I knew it all and that my own training was the best in Europe.

Through my contracted works with the BBC, I met Stuart Hanlon and was introduced to the concept of digital controls for buildings.

I'll admit that at first I was sceptical about its viability and reliability, completely based on my years of training and experience.

It soon became clear that although every bit of my training was valid, I had been excluded from a technology and technique that will benefit every project I see in the future.

This style of installation should be a core part of every student's training, not least because of the reduction it will have on the demand for raw materials such as copper.

Lord Nitesh Hirani

Councillor for Kenton East, London Borough of Harrow

As a local councillor, I see every day how decisions made years before a building is occupied go on to shape residents' quality of life, and their bills, for decades afterwards.

I also, in the interests of transparency, run a business supplying Velbus digital control systems, so I know first-hand both the resident-facing case for this technology and the commercial one.

What Stuart sets out in this letter matches what I hear from residents directly: people want homes that are cheaper to run and easier to live in, and they are frustrated that new-build properties still don't offer that as standard.

Councils like mine are also under constant pressure to deliver better value and lower long-term costs for residents, a housing stock built with proper digital control from the outset is a large part of how that gets delivered, not through short-term savings on the build, but through decades of lower running costs and easier maintenance for the people who actually live in these homes.

I'm proud to add my support to this letter, both as a councillor who wants to see central and local government aligned on this, and as someone who has seen the technology work in practice.

Matt Crabb

NextPhase Energy Ltd, Goole, Humberside

I was lucky enough to be on one of the DIYSOS builds that Stuart Hanlon and Velbus were involved with.

After being an electrician for over 15 years I assumed my electrical training had prepared me for everything needed in the modern world, yet what I saw during that build was on another level.

It was by far one of the easiest and most impressive solutions I have witnessed.

Fully wired systems like this are incredibly easy to comprehend and should be included as standard in modern electrical training, for all the reasons stated in this letter.

Luke Nightingale

Electrical Business Owner & Electrical Community Leader. Sutton, Greater London

There is an education gap between the systems that are available, and what is common knowledge to electricians and the general public.

By training the next generation of electricians on digital buildings and full integration, the message can spread to the general public who will receive increased benefit as the housing standard transitions to fully electric systems.

Mr Antony Antoniou

Councillor for Kingsthorpe Parish Council, Northampton

Dear Mr Hanlon,

RE: DIGITAL CONTROL SYSTEMS FOR NEW-BUILD PROPERTIES

I have taken some time to look into your digital control system, which I was not completely clear about until I researched it a little further. It seems to me that this is a wonderful way to ensure that all new-build homes are not only more energy efficient, but the system offers flexibility to make changes to light switches and lighting configurations very easily, and one thing that does appeal to me as a [Domestic Energy Assessor](#), is the capability for each control switch to also be a thermostat, this is huge. Currently, the RdSap conventions only recognise either one or two heating zones, but this is dating quickly and I believe that it is only a matter of time before additional credit will be added to the EPC rating for multiple thermostats, as this actually means that if the occupants are using one room, they will only be heating one room, while leaving the others in a dormant and safe state.

I am only a local Parish councillor, but I am happy to support your efforts to bring this to the attention of developers and anyone within government if this will help, as the benefits to occupiers is obvious and the fact that installation of the digital backbone at the time of construction would have a negligible impact on the overall cost.

I look forward to hearing from you.

Kind Regards

Councillor Antony Antoniou

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Fellow Lee Smith

Director – Cambridge Architectural Design
Lecturer – Anglia Ruskin University
UK Architectural Technologist of the Year 2025

As an Architectural Technologist, I spend a lot of my career helping clients retrofit sustainability into buildings that were never designed with it in mind and I can say from direct experience that it is always slower and more expensive than getting it right on paper than with retro-fit materials on site.

Unfortunately, there is a simple lack of awareness of such technologies right across the sector. When we look at how fast adjacent sectors (such as the automotive industry) move with new technologies; it's obvious that we can't go on presenting decades old technologies as 'innovative'.

If we're serious about the Future Homes Standard and genuinely sustainable buildings, this has to change. Which is why I'm proud to support this letter, and would actively encourage any member of any professional body to educate themselves with these technologies.

Justin Samson

Sampson Electrical Services Ltd, St Ives, Cambridgeshire.

I'm a newly qualified electrician, and earlier this year a client in Cambridge asked me to extend his existing Velbus system to cover a new log cabin and swimming pool area.

I'd never worked with a system like it before.

The client told me to contact Stuart for assistance, he talked me through the wiring concept quickly, but when it came to making the final connections myself I wasn't confident enough to do it without someone experienced there with me, simply because I'd never had any hands-on training on anything like this.

Stuart came on site and guided me through the final stages, with his support the extension was up and running in less than an hour.

He handled the software side of the commissioning, but having seen it done, I'm confident I could learn to do that part myself with a bit of proper training.

What's stayed with me since is something I said to Stuart at the time: this hardware and concept is over 26 years old, older than I am, and in the whole of my electrical training I never once heard it mentioned.

I'm adding my name to this letter because I don't think that should still be true for the next person qualifying after me.

Donna Ginger

MK College

Deputy Head of School - Electrical Installations

"We would like to express our support for your {Stuart's} request for greater recognition and funding of digital controls training within the Further Education sector.

Our students have found the training provided by Stuart, MDAR Ltd and Velbus to be extremely valuable, offering insight into an area of the electrical industry that they would otherwise have limited access to through the current curriculum.

With the current curriculum requirements, we are struggling to access funding to get Stuart and Velbus in front of our students. We feel that this kind of knowledge and experience is vital for the modern world and to achieve the design features that modern buildings demand.

Stuart, MDAR Ltd and Velbus have been kind enough to donate time for our students over the last few years, for which we, ourselves and the students, are grateful, but we appreciate that without central government support, there is only so much they can do without remuneration.

We fully support your efforts to raise this matter with the Secretary of State for Education Etc.."

Chris Game

MK College

Course Team Leader: Electrical Installation

"Within my role at MK College I have the privilege of meeting many representatives from industry that willingly provide their time for the betterment of our students, mostly funded directly from their employer.

Rarely however do these people attend without a sales hat and spend a proportion of their time "selling" to the students, rather than educating.

My first experience of Stuart Hanlon and the Velbus hardware was refreshing yet unsettling in the same instance. I was delighted and impressed with the content of the session, as it truly educated the students on a topic I had previously not been exposed to in my career.

The upset came when I realised when committing to a new build home for my own family that it would have none of the capabilities that a digital system could have offered."

Anthony Sigsworth MIET

T-Level/ Electrical Installation Lecturer, IQA qualified & Electrician of A.S Electrical Services.
Kirkless College, Huddersfield

I teach electrical installation to Level 2, Level 3 and T-Level students, and I see the gap this letter describes from the classroom side of it every single week.

What we're required to teach students about digital building control is a handful of poorly worded paragraphs framed as "smart home" extras, not the wired, professional infrastructure they'll actually be asked to work with if the industry moves in the direction it needs to.

I've watched students grasp the concept in an afternoon once someone finally shows it to them properly, and then go back to a syllabus that never mentions it again.

One of our students took it further than I could have hoped: having sat through a single session with Stuart, he went on to plan a fully worked Velbus solution of his own, and stood up in front of his entire cohort to present it.

I couldn't be prouder of what he did with that afternoon, and I have no doubt he is not the only student capable of it, he is simply the one who was given the chance.

I feel this most acutely outside the classroom too: I recently found myself unable to find a new-build home with any genuine digital control on offer at all, and ended up choosing a renovation project instead, specifically so I could install a digital system myself.

I am not the only person in that position, I just happen to know, more precisely than most, exactly what I wasn't being offered.

In the interests of transparency: Kirklees College has paid for training, support and demonstration equipment from Stuart's business in connection with curriculum development activity I've been involved in.

That doesn't change my view of the underlying problem, which I would hold regardless, our students deserve to be trained for the industry they're about to enter, not the one that existed when their tutors qualified.

Paul Adams M.Ed.

Fellow of the Society for Education and Training (with distinction);

23 years in Further Education, including as Head of Department for Electrical; Hull College

In 23 years in Further Education, much of it spent responsible for curriculum planning and quality assurance across an electrical department, I've sat through a great many industry visits pitched to students as "cutting edge."

Few of them are.

When Stuart ran sessions for three of our electrical groups, the difference was obvious immediately, this wasn't a product demonstration, it was genuine, transferable curriculum content that our students simply hadn't been exposed to anywhere else in their programme.

What convinced me this reaches further than one department was watching it happen in real time: as Stuart was packing up at the end of the day, our plumbing tutors, who hadn't been part of the original booking, asked him to stay and run an impromptu session for their own students too.

Nobody arranged that.

It happened because the tutors in the room recognised, unprompted, that this content mattered to their trade as much as to electrical.

The clearest evidence of impact came afterwards, in our students' own coursework: a handful chose, entirely off their own initiative, to build the digital backbone concept into their end-of-term "full rewire proposal" projects, a strong signal that this content isn't just interesting to watch, it's something students want to actually design with once they've seen it.

That is not the reaction I would expect to a curriculum area our awarding bodies currently treat as a minor, optional extra.

I support this letter because Further Education needs the freedom, and the funding recognition, to teach this properly and consistently, not as a favour a visiting distributor happens to offer, but as a core provision our students can rely on.

Ross Kirkland

Founder - i-HEATPUMP LTD, Scotland

Trained in systems engineering, the technologies described within this letter are familiar to me. My business focuses exclusively on the commissioning, fault-finding, servicing and maintenance of heat pump systems. These systems already employ different voltages and waveforms for different purposes within their refrigeration and control systems.

When working in someone's home or on site, it is often me who holds the necessary knowledge and skills to diagnose, repair and explain those elements of control that extend beyond conventional 230V mains electrical systems. While many qualified electricians and heating engineers do not routinely work with these technologies, those with an interest and given an opportunity can learn quickly.

Whether electric vehicles, heat pumps, air conditioning, solar PV, battery inverters or digital backbones, those entering our technical industries should be prepared to install and maintain the technologies required to deliver our collective policy objectives.

Consequently, I fully support Stuart Hanlon's letter and would welcome action to deliver its requests.

Steven Hardy

Teacher Industrial) electricity and maintenance
Herk-de-Stad, Flemish Region, Belgium

“My name is Steven Hardy and I'm an educator at SyntraPXL and CVO De Verdieping in Belgium. I've been involved in computers, software, hardware, automotive applications, lightning control and industrial applications for over 20 years. I'm not an engineer, nor do I have any kind of higher degree other than that of teacher. But I've worked in many fields and know what past, present and future problems are and will be.

First of all I'm a very big promoter of open-source. I have the (simple) idea that if you buy something, you own it and have the right to change, adapt or repair the thing you paid for. That's one of the reasons I go to [FOSDEM](#) every year. Although I don't understand all of it, I understand enough to be able to implement, discover and even build things.

So let me explain what it is I do. I teach automechanics, industrial maintenance, electricity (both residential and industrial) and of course [domotics](#). The part you (Stuart Hanlon & Velbus) come in.

Over the past years, it has become clear that conventional wiring in any type of building is outdated.

Not only because we're trying to bring planet earth back to life. This means we need to work better, smarter and all together.

“Smart homes” & Domotics, smart grid and even smart(er) power plants. Don't get me wrong, windmills and solar panels are all nice and beautiful but they also possess a great risk. The risk that landfills are getting too small. That's why we need smart(er) homes, grids and even plants and the future starts with those who are educated.

We need a whole new generation, open to the idea that we need to repair, not replace.

The idea that we need to work together and the idea that the future is now.

For centuries Europe has been the leader in innovative ideas and (commercial) goods. But that time is passing by. So we need to educate a whole new generation.

We need to leave the 90's behind us and start thinking of the future.

In Belgium a whole lot of residential, commercial and industrial buildings are connected. I don't mean connected to some sort of (paying) internet operated backbone, I mean we implement various forms of self hosted, open source systems to control those buildings so they require less power to operate, are easily adaptable to various circumstances and are ready for the future.

We do not use WiFi here!! Simply because it's not safe.

WiFi is fun to surf the internet with your laptop or your phone but that's it.

Your privacy belongs to you and that's the way it should stay.

If you want reliable, fast and unhackable transportation, you should use some form of cable.

Meaning systems like Velbus, KNX, NIKO and various others.

They rely on protocols that are proven to be reliable, fast and secure, for more than a decade.

We as a world need a new generation, a generation that is able to repair, to connect and to adapt to an ever changing world.

And that starts in a classroom.

It starts with a teacher that is given the opportunity to do so.

It starts in someone's workshop, with a student being inspired by that teacher to search for better solutions, better systems and a brighter (connected) future.

Eamon Wilson

Managing Director, EAS Mechanical Ltd, Northampton

EAS Mechanical trains apprentices in Plumbing and Heating, Electrical Installation, Building Services Engineering and Gas, all within a single integrated training environment. This gives us a vantage point that many colleges and providers do not have: on modern sites, these trades do not operate in isolation, yet the current qualification frameworks continue to treat them as entirely separate disciplines.

Recently, Stuart Hanlon delivered a presentation on the Velbus system to our apprentices and tutors. What stood out was not simply the technology itself, but the breadth of trades it simultaneously engaged, electrical installation, gas, heating controls, all functioning within one unified system.

This level of cross-trade integration is not reflected anywhere within the existing apprenticeship standards. At EAS, we address this gap by enhancing our programmes and bringing Stuart and his team in to deliver specialist content, because we recognise both the current relevance and the future necessity of digital building control across all building services occupations.

Digital control systems warrant the same hands-on, practical treatment as any core competency. At present, this is not happening consistently across any of the affected trades unless individual training providers choose to deliver it voluntarily.

I support this letter because the gap identified is not an electrical issue, nor a plumbing issue, nor a gas issue in isolation. It is a systemic gap across the entire building services sector. Independent training providers such as ours are impacted by this omission just as significantly as state-funded FE colleges, and the consequences will be felt across the future workforce if the standards do not evolve to reflect the realities of modern practice.

Billy Standing

Director – SCK Volt Ltd | NICEIC Approved Contractor | KNX Partner

I have worked in the electrical industry for nearly 30 years, completing a full electrical apprenticeship and progressing through inspection and testing, electrical design and verification, renewable technologies and, more recently, KNX building automation.

What has surprised me most since moving further into building controls is how much of the underlying knowledge I already had as an electrician. I already understood lighting, heating, ventilation, electrical distribution and the physical installation of building services. What had been missing from my training was how those individual systems can communicate and operate together as one building.

I am now applying this knowledge to real projects involving KNX, DALI, heating, HVAC, shading and energy systems, and it has completely changed the way I look at electrical design. I believe apprentices should be introduced to these principles during their core training rather than discovering them decades later, as I have.

Although my own current training and project work is predominantly KNX, my discussions with Stuart about Velbus have reinforced something important: this should not be about promoting one manufacturer or one protocol. Electricians should be taught the fundamentals of professional wired building control so they have the foundation to understand and work with different systems throughout their careers.

As buildings increasingly incorporate heat pumps, solar PV, battery storage, EV charging and intelligent controls, electricians need to understand not only how to install and supply these technologies safely, but how they can work together efficiently as part of the complete building.

That is why I support this letter. I believe building-control fundamentals should become part of modern electrical training, giving the next generation of electricians knowledge that many experienced electricians are currently having to seek out for themselves later in their careers.

Selected references and Glossary

[CAN bus automotive history, Copperhill Technologies](https://jcom1939.com/history-and-development-of-the-controller-area-network-can-bus/) { an excerpt from <https://jcom1939.com/history-and-development-of-the-controller-area-network-can-bus/> }

“Expansion into Diverse Industries (2000s)

Beyond automotive applications, the 2000s witnessed CAN bus's expansion into various industries. Its reliability and real-time communication capabilities made it suitable for industrial automation, medical equipment, maritime, and aerospace applications. Standardized higher-layer protocols such as CANopen and DeviceNet facilitated this diversification by providing frameworks tailored to specific industry requirements. “

[CAN bus history, CAN in Automation \(CiA\)](#)

[Approved Document L \(Part L\), GOV.UK](#)

[Velbus reliability and warranty](#)

[Velbus open protocol documentation, GitHub](#)

[Lutron residential/dealer installer programme \(commissioning access\)](#)

[CVO Groeipunt, Gebouwenautomatisering / Installateur Domotica \(state-recognised adult education\)](#)

[SyntraPXL, Technicus Domotica \(VLAIO-recognised vocational course\)](#)

SELECT - <https://www.select.org.uk/> Scottish Electrical Standards

Domotics:

A term derived from a portmanteau of the Latin word for home (*domus*) and *robotics* or *informatics*. Commonly used in mainland Europe, it serves as a direct synonym for **home automation** or **smart home technology**. It refers to the integrated application of computing, electronics, and network telecommunications to control residential systems, such as lighting, climate control, security, and appliances, either autonomously or via remote control to optimize energy efficiency and domestic comfort.

[https://www.wattsense.com/resources/glossary/domotics-definition-/](https://www.wattsense.com/resources/glossary/domotics-definition/)

<https://www.lifegate.com/domotics-home-automation>

<https://www.worldwidewords.org/tp-dom1.html>

<https://www.olivermateu.com/en/blog/post/Domotics-or-smart-homes-future-or-reality>

<https://intnews.it/en/domotics/>

Useful Web Links for Verification

- **Etymology and Context:** Review the [World Wide Words Overview of Domotics](#) to understand why European contributors lean toward this phrasing rather than "smart home".
- **Technical Definition:** Check the [Wattsense Glossary on Domotic Technology](#) for a breakdown of how the network infrastructure functions compared to commercial building systems.]
- **General Overview:** Read the [Wiktionary Entry for Domotics](#) for a quick, universally accepted dictionary definition.

Citations

Future Homes Standard

<https://home-energy-model.co.uk/future-homes-standard/>

“Under the statutory provisions laid out in The Building Regulations etc. (Amendment) (England) Regulations 2026, all domestic new-build properties are legally mandated to achieve a minimum 75% reduction in carbon emissions via low-carbon heating, solar PV arrays, and enhanced building fabrics.”

https://www.designingbuildings.co.uk/wiki/Future_Homes_Standard_consultations

“Compliance metrics for the framework are governed under the revised statutory guidance of Approved Document L (2026): Energy and Greenhouse Gas Emissions, Volume 1: Dwellings, which restricts the use of fossil-fuel gas boilers in favour of heat pump systems.”

Net Zero

<https://www.legislation.gov.uk/ukxi/2019/1056/contents/made>

“A comprehensive, legally binding framework establishing science-led carbon and energy budgets for building assets across the UK. It mandates exact targets for upfront embodied emissions (materials and construction) and operational energy usage across residential, commercial, and industrial sectors”

Eindtermen

<https://data-onderwijs.vlaanderen.be/edulex/document/15854>

“As defined by the Flemish Ministry of Education and Training via the Edulex database (Decreet betreffende de onderwijsdoelen), 'Eindtermen' represent the legally mandated minimum attainment targets for knowledge, skills, and attitudes. “

<https://eurydice.eacea.ec.europa.eu/eurydia/belgium-flemish-community/overview>

“As documented in the European Union’s Eurydice profile for the Belgian Flemish Community, 'Eindtermen' are defined as the statutory minimum targets deemed necessary and attainable for the student population.”

“Under the autonomous educational framework of the Belgian Flemish Community, schools must adhere to 'Eindtermen' (officially translated as 'attainment targets' or 'minimum targets'). As verified by the Flemish Ministry of Education and Training, these targets outline the statutory minimum knowledge, insights, and skills required of pupils”

CVO Groeipunt

<https://www.groeipunt.be/>

“It operates under the direct regulatory authority of the Flemish Ministry of Education and Training (Vlaams Ministerie van Onderwijs en Vorming). It provides legally recognized diplomas, professional certifications, secondary education pathways, and language courses (such as Dutch as a Second Language / NT2) to adult learners.”

SyntraPXL

<https://www.syntrapxl.be/>

“SyntraPXL is an accredited, government-subsidised vocational and entrepreneurship training institution in Belgium, operating under the Flemish Agency for Entrepreneurial Training. It provides practical work-study qualifications equivalent to a Further Education (FE) college in the UK”

Belgium's national electrical code (AREI)

<https://economie.fgov.be/nl/themas/energie/bronnen-en-dragers-van-energie/elektriciteit/veiligheid-en-controle-van>

"Belgium's national electrical code, known as the AREI (Dutch) or RGIE (French), is the mandatory federal regulation governing the design, safety, and inspection of all electrical installations in the country. It serves as the Belgian legislative equivalent to the UK's BS 7671, with strict compliance required for both household and industrial systems."

DigiPlan 2025

<https://eurydice.eacea.ec.europa.eu/news/belgium-flemish-community-major-investment-digital-education-infrastructure>

"As documented by the European Commission's Eurydice Network, the Flemish Government enacted a statutory €176 million educational and digital infrastructure package under its comprehensive 'Digiplan' policy framework."

Morris Homes - Zero Energy Home

<https://octopus.energy/blog/explore-zero-bills-home-customer-interview/>

Morris Homes & Octopus Energy Smart Housing Provision ("Zero Bills")

- **Developer:** Morris Homes Limited. [[Company check](#)]
- **Energy Partner:** Octopus Energy Group. [[Octopus Energy](#)]
- **Core Infrastructure:** Pre-installed Solar PV, domestic battery storage (e.g., Tesla Powerwall or Octopus Nook frameworks), and an air-source heat pump. [[YouTube "Zero Bills"](#), [Solar Panels](#)]
- **Operational Mechanism:** Managed via the Kraken technology platform. [[Octopus Energy](#)]
- **Official Web Guidance:** Detailed program parameters are verified via [Octopus Energy Smart Tariffs Portal](#). [[Zero Bills](#)]
- **Summary:** A legally recognized property provision where new-build housing assets are built to pass Part L building compliance via active solar and battery retrofitting. When homeowners sign over smart automated control of their home storage battery to the utility provider, a specialized tariff enforces a net-zero financial balance on domestic electricity usage.

Lutron Dealer lockout

<https://residential.lutron.com/uk/en/become-a-dealer>

"Lutron's official dealer program and training curriculum verify that commissioning software for systems like HomeWorks QSX and Athena is strictly restricted to certified providers, requiring specialised training beyond general electrical licensure. Access to these proprietary configuration tools is gated by mandatory, multi-day certification, limiting standard electricians to physical hardware installation. Detailed requirements for authorisation can be found on the Lutron website"

Domestic Energy Assessor

<https://energyperformancecertificates.co.uk/domestic-energy-assessor>

In accordance with the National Occupational Standards for a Domestic Energy Assessor (DEA).

Department for Levelling Up, Housing and Communities (or current relevant department). National Occupational Standards: Domestic Energy Assessor. UK Government

RdSap conventions

<https://www.gov.uk/guidance/standard-assessment-procedure>
<https://bregroup.com/expertise/energy/sap/sap-10>

Building Research Establishment (BRE). *Standard Assessment Procedure (SAP 10) / RdSAP 10 Conventions*. BRE Group.

Department for Energy Security and Net Zero (DESNZ). *Standard Assessment Procedure Guidance*. GOV.UK Guidance

“Building Research Establishment (BRE). *Conventions for RdSAP 10*. Published on behalf of the Department for Energy Security and Net Zero (DESNZ). Available at: BRE Group SAP 10. “

Awaab’s Law

<https://www.gov.uk/government/publications/awaabs-law-guidance-for-social-landlords/awaabs-law-guidance-for-social-landlords-timeframes-for-repairs-in-the-social-rented-sector>

“Awaab’s Law requires social landlords to investigate and fix reported damp, mould and emergency hazards within fixed timeframes” in force in England from 27 October 2025 under the Hazards in Social Housing (Prescribed Requirements) (England) Regulations 2025, with Phase 2 extending statutory timescales to further hazards including excess cold from November 2026.

Carbon monoxide alarms, Approved Document J

<https://www.gov.uk/government/publications/carbon-monoxide-alarms-approved-document-j>

Under Approved Document J, carbon monoxide alarms must comply with BS EN 50291-1:2018, be fitted with an integral sounder, and be either battery-powered for the working life of the alarm or fixed-wired mains-powered with a sensor-failure warning device, a standalone statutory requirement that a bus-connected sensor supplements rather than replaces.

TRV and “Time and Temperature Zone Control”

Under [HM Government's Approved Document L Guidance](#), standard Thermostatic Radiator Valves (TRVs) are mandated as the baseline minimum requirement for individual room temperature control when replacing a heat source.

While the regulatory phrase **"Time and Temperature Zone Control"** (TTZC) represents a major step forward for energy optimization by encouraging localized scheduling, current legislation lacks the necessary firmness to make it genuinely effective.

As defined in [Ofgem's ECO4 Statutory Guidance](#), TTZC can be satisfied through entirely separate physical plumbing circuits *or* programmable smart TRVs; however, the building regulations do not explicitly codify electromechanically controlled zones as a blanket mandate. To prevent installers from defaulting to basic and cheaper passive controls, policy frameworks must be firmed up to clearly distinguish between standard mechanical temperature regulation and advanced digital electromechanical scheduling, which as a by-product removes the ability to “switch off” a zone completely and thus enabling better compliance with [Awaab's Law](#).

Part M, Adapted Houses and Inclusive buildings.

The policy landscape for accessible housing in the UK remains fragmented as M4(2) and M4(3) standards remain optional rather than mandatory, creating a reliance on local planning authority enforcement. While a 40% accessibility target is proposed in the NPPF, housing experts highlight gaps in creating an uncompromising, national baseline for wheelchair-specific housing. Furthermore, Permitted Development Rights (PDR) create a severe regulatory loophole, allowing office-to-residential conversions to bypass mandatory access standards, as highlighted in [TCPA parliamentary briefing](#). As noted by the [Habinteg Housing Association](#), this failure to regulate results in the continued expansion of inaccessible housing stock, disproportionately affecting disabled and older individuals.

CPD "Continuous Professional Development"

In the construction sector, **Continuing Professional Development (CPD)** refers to the mandatory, structured process through which industry professionals—including architects, engineers, and site managers—proactively maintain, broaden, and update their technical knowledge and practical skills throughout their careers. Regulated by leading statutory bodies like the [Chartered Institute of Building \(CIOB\)](#) and the [Royal Institute of British Architects \(RIBA\)](#), technical construction CPD blends formal learning (such as certified safety courses, structural engineering seminars, and manufacturer product training) with informal development (such as technical reading or peer mentoring). In a modern regulatory landscape, ongoing CPD is legally vital for ensuring that contractors remain fully compliant with rapidly evolving statutory frameworks, such as the stringent oversight and competency expectations dictated by the [UK Building Safety Act 2022](#).

PayWall

In industrial engineering and technical procurement, a physical **"hardware paywall"** occurs when a manufacturer deliberately builds proprietary, software-locked restrictions directly into a piece of physical infrastructure, such as a commercial boiler, BMS (Building Management System), or smart energy hub.

Although the asset is fully paid for and installed on-site, the end-user is restricted from accessing its essential diagnostics, firmware updates, or critical configuration menus.

Instead, these parameters are gated behind proprietary encryption keys or digital portals that can only be unlocked by an accredited manufacturer-certified service engineer.

To maintain basic operational compliance, validate product warranties, or receive ongoing technical support, the building owner is forced into a recurring ["Hardware-as-a-Service" \(HaaS\)](#) framework.

This creates an artificially engineered dependency, trapping consumers behind a continuous yearly service fee just to keep their own physical assets functioning

"Hardware-as-a-Service" (HaaS)

In corporate and industrial asset management, **"Hardware-as-a-Service" (HaaS)** is a procurement model where physical infrastructure, such as commercial heating plants, data servers, or building automation systems, is supplied under a subscription-based operating agreement rather than through upfront capital expenditure. Instead of purchasing and owning the equipment outright, the building operator pays a recurring monthly or annual fee that bundles the physical asset, its ongoing maintenance, firmware updates, and eventual decommissioning into a single operational cost.

While proponents argue HaaS reduces initial capital barriers and shifts technological obsolescence risk back onto the manufacturer, it changes the legal relationship with the physical environment. By transferring ownership and asset control to a third-party vendor, the property occupier is locked into long-term contract dependencies, turning basic utility infrastructure into a permanent, non-negotiable service subscription

Competent Person Scheme (CPS)

In the UK construction and home improvement sectors, a **Competent Person Scheme (CPS)** is a government-approved framework that allows qualified tradespeople to **self-certify that their work [complies with the Building Regulations](#)**

Introduced by the government in 2002, these schemes act as an alternative to submitting a standard building notice or hiring a local authority building control officer to inspect a completed job. When an installer is registered under a CPS, they bypass third-party building control inspections, reducing project delays and eliminating building control fees for the end consumer

BBC DIYSOS

<https://www.bbc.co.uk/iplayer/episodes/b006pnjk/diy-sos>

Three builds involving Velbus®

"The Gladiator Special" -

<https://www.bbc.co.uk/iplayer/episode/m002p153/diy-sos-series-34-5-gladiators-special>

"Children in Need 2025, Joshua Tree" -

<https://www.bbc.co.uk/iplayer/episode/m002m42l/diy-sos-children-in-need-special-2025>

"Southampton" - due to air Oct 6th 2026 @ 8Pm

Search the [BBC iPlayer](#) for "DIYSOS Southampton" after broadcast

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