



# Colchester Borough Council

## New Dwellings Guidance Booklet for the new Building Regulations coming into effect in June 2022

Key insights into Approved Documents:

**F = Ventilation**

**L = Energy efficiency**

**O = Overheating**

**S = Electrical vehicle charging points**



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**Any requests for site inspections should be made by calling 01206 282436 before 4pm for an inspection the following working day.**

The new Building Regulations will come into force for applications made on or after 15 June 2022. The new requirements will not apply to applications made prior to June 15 providing substantial building work has begun before 15 June 2023 on all aspects of the application. This gives 1 year's grace to allow commencement. (Note: Projects need substantial start i.e., foundations excavated and poured.)

**Table 1: Clarification on transitional provisions**

Date	14/06/2022	15/06/2022	15/06/2023	2025
<b>Part L, F &amp; O</b> (Transition periods apply to plot-by-plot basis)	Applications made on or before this date will have until the 14/06/2023 to commence individual plots to build to current standards	Applications deposited on or after this date will have the new regulations applied	Any new dwelling / plot started on or after this date must build to the new Part L, F & O regardless of when the application was made	Projected, next update to the Regulations standards will increase again with similar transition periods

Date	14/06/2022	15/06/2022	15/06/2023
<b>Part S</b> (Site wide transition periods)	Applications made before or on this date have 1 year to commence a single plot so you can build the whole site without EV points	Applications deposited on or after this date must now provide EV charging points etc. In line with Part S	If work hasn't commenced on a single plot on applications made on or before 14/06/22 then the new Part S must be followed and provide EV points to all plots.

Please note, you should also check if your planning application asks for higher or additional performance than any of these requirements.

## Part F – Ventilation.

Part L 2021 now asks for all new dwellings to be air tested and the ventilation requirements have been revised to help to reflect these changes.

All extractor fans should be tested, and mechanical systems. Appendix C of Part F gives a new commissioning detail.

Dwellings can still use natural background ventilation by trickle vents and intermittent extractor fans however dwellings designed with an air tightness of less than  $5\text{m}^3/(\text{h}\cdot\text{m}^2)$  at 50Pa or if following construction, the building is found to have an air leakage of  $\leq 3\text{m}^3/(\text{h}\cdot\text{m}^2)$  at 50Pa, then a continuous mechanical system is required. If there are clear discrepancies between the design and the as-built tests mechanical systems may also be required if not already in place or expert advice will be required.

Trickle vents must now be between  $8000\text{mm}^2$  -  $10,000\text{mm}^2$  equivalent area per habitable space. (The little number stamped on the trickle vents will tell you how much equivalent area they give you) Open plan kitchens will now need at least 3 trickle vents of at least  $8000\text{mm}^2$  each. In simple terms most dwelling's trickle vents will now need double the existing amount or be double in size. You'll need at least 4 or 5 ventilators per dwelling and dwellings opposite noisy sites like main roads need noise attenuating background ventilation.

**Table 1.7 Minimum equivalent area of background ventilators for natural ventilation<sup>(1)</sup>**

Room	Minimum equivalent area of background ventilators for dwellings with multiple floors	Minimum equivalent area of background ventilators for single-storey dwellings
Habitable rooms <sup>(2)(3)</sup>	8000mm <sup>2</sup>	10,000mm <sup>2</sup>
Kitchen <sup>(2)(3)</sup>	8000mm <sup>2</sup>	10,000mm <sup>2</sup>
Utility room	No minimum	No minimum
Bathroom <sup>(4)</sup>	4000mm <sup>2</sup>	4000mm <sup>2</sup>
Sanitary accommodation	No minimum	No minimum

**NOTES:**

- The use of this table is not appropriate in any of the following situations and expert advice should be sought.
  - If the dwelling has only one exposed façade.
  - If the dwelling has at least 70% of its openings on the same façade.
  - If a kitchen has no windows or external façade through which a ventilator can be installed.
- Where a kitchen and living room accommodation are not separate rooms (i.e. open plan), no fewer than three ventilators of the same equivalent area as for other habitable rooms should be provided within the open-plan space.
- The total number of ventilators installed in a dwelling's habitable rooms and kitchens should be no fewer than five, except in one-bedroom properties, where there should be no fewer than four.
- If a bathroom has no window or external façade through which a ventilator can be installed, the minimum equivalent area specified should be added to the ventilator sizes specified in other rooms.

Part F simplifies ventilation, it now only considers what used to be system 1, 3 and 4 in the current edition, ignoring passive stack ventilation options. There is also greater consideration to mechanical systems and includes issues like pollutants.

It should be noted that using mechanical heat recovery ventilation systems potentially means your designer could offset fabric standards in the SAP assessment and depending on the mechanical ventilation system used you may still require a lower standard of trickle vents.

## Part L – Conservation of Fuel and power.

**Table 2: U-Value Table highlighting changes as of June 2022**

Thermal Element	Current U-Value	New Notional Dwelling U-Value. (U values used as targets for new dwellings)	New Actual Threshold U-Value (Backstop requiring compensation elsewhere)
<b>New Floors</b>	0.22 W/m <sup>2</sup> K	<b>0.13 W/m<sup>2</sup>K</b>	0.18 W/m <sup>2</sup> K
<b>New Walls</b>	0.28 W/m <sup>2</sup> K	<b>0.18 W/m<sup>2</sup>K</b>	0.26 W/m <sup>2</sup> K
<b>Roof</b>	0.16 W/m <sup>2</sup> K 0.18 W/m <sup>2</sup> K	<b>0.11 W/m<sup>2</sup>K</b>	0.16 W/m <sup>2</sup> K
<b>Glazing</b>	1.6 W/m <sup>2</sup> K	<b>1.0 W/m<sup>2</sup>K</b>	1.6 W/m <sup>2</sup> K

**Table 3: Typical construction and U-Values for a notional dwelling**

Partial Example of Notional Dwelling:	
Floor 0.13 W/m <sup>2</sup> K	150mm PIR insulation to the floor,
Walls 0.18 W/m <sup>2</sup> K	100mm Brick - 150mm/ 200mm Cavity width with 100mm block. Cavity width thickness dependant on Cavity batts, PIR insulation, blown insulation and blocks specified.
Roof 0.13 W/m <sup>2</sup> K	About 400mm of loft roll in pitch roof ceilings or 100mm PIR between rafters and 80-100mm underneath.
Heating system	Either a gas boiler with solar panels or a low carbon heating system i.e. air source / ground source heat pump.
Wastewater heat recovery	All showers connected to WWHR, including showers over baths.
Air permeability 5 m <sup>3</sup> /(h·m <sup>2</sup> ) at 50 Pa	Vented by natural and intermittent extract fans.
All dwellings are now required to be air tested.	

Ultimately **you require an 'as design' Sap before you start works** to specify levels of insulations required / heating system. It's easier to comply with heat pumps etc rather than gas boilers and solar panels, but you'll likely have a worse EPC due to running cost. You should also consider planning considerations for any of these systems. **Building notices should be avoided**, because of the level of information required and therefore can only be accepted if deposited with the full submission information.

## Continuity of insulation and thermal junctions

New build dwellings **will need to clearly show drawings of all thermal junctions and continuity of insulations**. This will help reduce heat loss and lower the risk of condensation and mould. This will also link back to the new SAP 10 program. Things to consider

- **Floors and foundations:** Insulation should be installed tight to the structure, without air gaps between insulation panels and at edges
- **Windows and doors:** Should be installed in such a way that the thermal integrity of the insulated plane is maintained.
- **Walls:** Insulation should be fitted without any air gaps and tight to the structure, cavity closers, lintels and cavity trays. Mortar snots should be removed to ensure a tight fit with the structure and cavities kept clear of all debris. Where fire-stopping socks are required, these should fully fill the areas where they are fitted, including at the heads of cavities.
- **Roofs:** Insulation should be installed tight to the structure, without air gaps, and should extend to join the wall insulation. For roofs insulated at ceiling level, the long-term protection of the insulation layer should be considered: boarded areas should be provided above the insulation to give access for maintenance.
- **Rigid insulation boards:** Should only be used on flat surfaces. Boards should be fitted to the structure to avoid any gaps between board edges and between the board facings. The use of boards with lapped or tongue and groove edges should be considered. Any unavoidable gaps between boards should be infilled using compressible tape (e.g., for boards within roof rafters) or low expansion foam (e.g., for boards within wall cavities).
- **Penetrating elements:** Steel beams, incoming services, meter boxes and sub-floor vents etc. Designs should clearly indicate means to limit disruption to the insulation. For recessed meter boxes on the cold side of the construction, insulation should be installed behind the enclosure. For service penetrations insulation should be fitted tightly around ducts, pipes, etc.

These junctions can either be designed and assessed or taken from junction databases such as the Local Authority Building Control Construction details library. This links to BREL reporting & Photos of in-built thermal junctions.

<https://www.labc.co.uk/business/construction-details>

## BREL: Part L & SAP 10

Your SAP assessor will provide Building Control with a Building Regulation (England) Part L Compliance Report (BREL) at design stage showing the insulation being used, information on thermal junctions and other details. This will be used to check the thermal build and if substitute products are being used.

### Example:

The BREL compliance report specifies that 0.15 W/m<sup>2</sup>k blocks are to be used such as Thermalite Shield, Top Lite standard and Celcon standard.

Building Control see on site that blocks of a different brand have been used that aren't as thermally efficient. Example 0.3 W/m<sup>2</sup>k Forti Crete Ultra-light. Therefore, the BREL Compliance report would need to be recalculated.

### Annex C - BREL Compliance Report

**Building Regulations England Part L (BREL) Compliance Report**

Approved Document L1A 20XX Edition, England assessed by xxx SAP 10 program, x.x.x.x

This intention of this template is to identify the level of detail to be included within the BREL at as-designed and as-built stages. It is an example based on a single dwelling. Additional information should be included for technologies not represented in this example.

Project Information			
Assessed By	Text	Building Type	e.g. Semi-detached House
OCDEA Registration	Text		

Dwelling Details			
Assessment Type		Total Floor Area	Value m <sup>2</sup>
Site Reference	Text	Plot Reference	Text
Address	Text		

Client Details	
Name	Text
Address	Text

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate			
Fuel for main heating system:	e.g. Electricity		
Target carbon dioxide emission rate	Value	kg/m <sup>2</sup>	
Dwelling carbon dioxide emission rate	Value	kg/m <sup>2</sup>	OK

1b Target primary energy rate and dwelling primary energy			
Target primary energy	Value	kWh/m <sup>2</sup>	
Dwelling primary energy	Value	kWh/m <sup>2</sup>	OK

2a Fabric U-values				
Element	Average U-Value	Highest U-Value	Key layer elements to achieve U-Value:	
External Wall	x.xx (max. 0.26)	x.xx (max. 0.70)	Layer 1: Description Manufacturer/product ref/thickness	OK
Party wall	x.xx (max. 0.20)	-	Description e.g. Cavity Sock Manufacturer/product ref/thickness	OK
Floor	x.xx (max. 0.18)	x.xx (max. 0.70)	Layer 1: Description Manufacturer/product ref/thickness	OK
Roof	x.xx (max. 0.16)	x.xx (max. 0.35)	Roof 1, Layer 1: Description Manufacturer/product ref/thickness Roof 2, Layer 1: Description Manufacturer/product ref/thickness	OK

### Example of BREL report.

Left: is an example first page for a BREL report. All materials specified must be installed with no substitutions allowed unless the report is recreated by your energy assessor.

Building control can use this easy to see checklist when carrying out site inspections and may ask you recalculate thermal elements if you swap to brands or material types of different thermal values.

e.g., Dritherm 32 cavity batts specified but another product seen on site. BREL report will need to be reissued at completion to reflect changes.

## Photographic evidence

Photographs for each plots thermal junctions **MUST** be taken. These can be taken by anyone dealing with the project on site, but ideally a responsible person as these **photos are required for completion and will be needed by your BREL and SAP assessor to undertake the as-built assessment and EPC, they will not be able to do this without them.** This will not be for your Building Control Surveyor to do.

One photograph per detail should be recorded and **photographs will need to be unique to each property.** Additional images, such as a closeup details, can be provided only when necessary (see below). Photographs should be taken at appropriate construction stages when each detail is completed and always prior to closing-up works.

### Example BREL Photo

- Photo of detail to Plot 1 would be named P1/2B (see Table 4 on next page) to denote that it shows an external wall (2) and a structural penetrating element (B).
- Photo clearly shows the cavity wall prior to the insulation being blown in with minimal mortar snots present and of a structural penetration with cavity closer and insulation in the lintels as per plans.
- Shows GPS data, time stamp and optional name of who took the photo.
- Optional Map data for ease of identification.



- Good quality high resolution photo/ not blurry or too far away.

We have used a location time stamp camera app Timestamp camera; however, you should confirm with your SAP assessor a suitable app or camera to use.

**Table 4: Photographic Evidence**

Photos required for each plot	
1. Foundations/substructure and ground floor, to show thermal continuity and quality of insulation in the following places.	a. At ground floor perimeter edge insulation. b. At external door threshold. c. Below damp-proof course on external walls.
2. External walls: For each main wall type, to show thermal continuity and quality of insulation for the following.	a. Ground floor to wall junction. b. Structural penetrating elements. NOTE: For blown fill, photos should show clean cavities and clean brick ties with very limited mortar droppings.
3. Roof: For each main roof type, to show thermal continuity and quality of insulation at the following.	a. Joist/rafter level. b. Eaves and gable edges.
4. Openings: For each opening type (one image per wall or roof type is sufficient), to show thermal continuity and quality of insulation with photographs of the following.	a. Window positioning in relation to cavity closer or insulation line. b. External door set positioning in relation to cavity closer or insulation line.
5. Airtightness: Additional photographs for all details 1–4 to show airtightness details. (only if not included or visible in continuity of insulation image).	
6. Building services: For all plant associated with space heating, hot water, ventilation and low or zero carbon technology equipment within or on the building, show the following.	a. Plant/equipment identification label(s), including make/model and serial number. b. Primary pipework continuity of insulation. c. Mechanical ventilation ductwork continuity of insulation (for duct sections outside the thermal envelope).
<p>Photo's require Geo-location with a date &amp; time stamp showing when the photos are taken. They should be of good quality and may require close ups if long shots do not provide enough details. Photos should be referenced to the numbers above. Apps like "Timestamp camera" could be used.</p> <p>Example: Photo of Plot 1 Ground floor to wall junction is named P1/2A</p>	

Please see Appendix B of approved Document L Volume 1, 2021 edition

## Part O – Overheating

Achieving more airtight and efficient dwellings creates a chance of overheating. This new Approved Document only applies to newly built residential buildings where people sleep overnight, which includes new houses, flats, student accommodation, care homes and similar living accommodation. It does not apply to residential buildings formed by change of use or hotels, hospitals etc.

Developments within East Anglia are classed as moderate overheating risk, similar to most of the UK except some large cities.

**Table 5: Methods of compliance**

There are two methods for compliance with Part O.	
<p>‘Simplified method’</p> <p>Approved document O gives restrictions for glazing percentage on each side of the building depending on orientation. This helps limit solar gains and sets minimum free areas for windows to be opened to remove heat from a building.</p> <p>Although classed as simplified it is <b>hard to reach compliance</b>. Single façade flats, dwellings adjacent to noise and pollutants or current design standards will likely see <b>most fail</b> to comply with this method. The Department for Levelling Up, Housing and Communities explained on a webinar that this was intentional to limit design standards as research showed all new homes overheated.</p>	<p>CIBSE’s TM59 thermal modelling</p> <p><b>A more flexible and likely to be the preferred method</b></p> <p>Will consider the risk based on location, material, orientation, occupancy etc to determine how and if a building will overheat.</p> <p>It’s worth noting internal blinds and curtains and external trees cannot be considered for shading to avoid overheating.</p> <p>Where neither of these methods can show compliance only then can you use mechanical cooling</p>

**Designers** will have to complete a checklist showing what method they have used, also both the **builder** and **Building Control** will need to **sign** the checklist to prove the design has been met. Building Control will also use this to determine if the design is followed on site.

The compliance checklist can be found in Appendix B of Approved Document O.

**Part 2 – Design details**

*The designer should complete either Part 2a or 2b, depending on the method used.*

**Part 2a – Simplified method (as detailed in Section 1)**

<b>2a.1 Site details</b>	
Site location, assigned using paragraph 1.3 <sup>1)</sup>	
Building category, assigned using paragraph 1.4	
<b>2a.2 Designed overheating mitigation strategy</b>	
Details of standards selected:	
a. Maximum area of glazing	
b. Maximum area of glazing in the most glazed room	
c. Shading strategy	
d. Total minimum free area	
e. Bedroom minimum free area	
<b>2a.3 Designer's declaration</b>	
Designer's name	
Designer's organisation	
Designer's signature	
Registration number (if applicable)	
Date of design	

NOTE:  
1. All references to paragraphs are to Approved Document O.

## **Part S – Electrical vehicle charging points.**

The Building Regulations will now consider Electrical Vehicle (EV) Charging Points.

- Every new dwelling with associated parking requires an EV charging point.
- Dwellings formed by change of use with associated parking will require an EV point. (Percentages apply to large conversion projects)
- Residential buildings like flats that undergo a “major renovation” will have to have its parking spaces assessed and may require EV points and or EV cabling in place.
- New Non-residential buildings will need 20% of the spaces to have cabling for charging points and a minimum of one charging point in place if there are at least 10 car parking spaces.
- Non-residential buildings undergoing major renovation may require the same provisions as new non-residential buildings.

Acceptable locations for Electrical charging spaces are given in Approved Document S, however interference with Approved Document M access should be noted.

The EV points are likely to be commissioned under competent work schemes such as Part P registered electricians, IET wiring regulations etc. Therefore, Building Control will unlikely be commissioning EV points and just ensuring they are in place as part of a Building Regulation Application.

The Building Regulations do not consider charging points of non-associated parking. So, parking spaces that aren't associated with dwellings, like on street parking, are not part of our requirements but other law, such as planning may stipulate higher requirements than the Building Regulations. It's also expected that charge points will be a minimum of 7kW power to prevent the use of 13A plug sockets.

For this requirement to be waived based on cost, two formal quotes will need to be provided to Building Control at the plans stage showing they exceed the cost cap given in Part S. This is normally where the average connecting cost per charging point exceeds £3600. This is most likely in remote locations where dwellings and non-residential buildings require electrical infrastructure that would require a high cost to upgrade.

## Part F, L & O Home User Guide

### Providing information to homeowners - What information do I need to provide?

The 2021 versions of Approved Document F, L & O set a standard for a home user guide to be given to the owners of new homes.

Developers & home builders need to provide information to homeowners regarding the thermal performance of the building, dealing with overheating, how to use ventilation systems and domestic heating systems.

It is recommended to use the new government standard template on the Gov.uk website shown below; however, you could also create your own templates or use manufactures information.

This will provide homeowners with crucial information and help them understand the provisions the new regulations asked for in their new homes.

[Home user guide template and ventilation guide - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

## Home Energy Guide

**Dwelling Details:**

Site reference:	Total floor area: m <sup>2</sup>
Address:	Plot reference:

  

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## Frequently asked questions

### Part L

1. Why have Accredited Construction Details gone / not able to be used?

These details are seen to be out of date and do not accurately reflect the impact / performance of thermal bridges. It is now more appropriate to use manufacturers specific values or for them to be calculated individually by a suitably competent person.

2. What are your thoughts on the size of cavities?

It is still possible to construct in masonry and keeping a 100mm cavity although, in most instances, you will either need to provide additionally insulation internally to reduce the U value or will need to increase insulation in the other elements to compensate.

150mm cavities are now quite common on new builds.

3. Will Hydrogen be an option?

Currently there is no option for Hydrogen based heating.

4. If the maximum flow temperature for heating is designed to be limited to 55°C how will legionella be mitigated?

The hot water cylinder will need to include an immersion heater to ensure the temperature can be raised sufficiently.

5. What happens if you need solar PV panels but are in a conservation area?

This will need to be dealt with at planning stage therefore early engagement with an energy assessor is critical so a suitable strategy for compliance can be agreed.

6. How does the choice of material factor into the zero-carbon emission contribution?

With respect to the carbon emissions compliance of Part L the impact on emissions through the choice of materials is not a consideration / is not currently taken into account.

7. Will the 2025 update generate more passive house standards?

We do not currently know what the intended standards will be for the Future Homes Standard. However, it would be safe to assume that U values may be reduced and more emphasis on air tightness together with MVHR will feature.

8. What is the future for boilers?

The government have signalled their intention to have no new homes built after 2025 heated via gas boilers. Whether this will be the case will be dependent on future changes to the building regulations and will be subject to consultation, possibly in 2023. We do not know if this will be the case with the replacement of existing gas boilers.

9. Heat Loss and Gains/Thermal Bridging - Inspections – who would be the one to carry them out – contractors OR designers?

This would need to be agreed between the parties involved. All building control need to know is that that an appropriate system of site inspection is in place to provide this evidence.

Details of who would be conducting the inspections and that they have the relevant competency to do this would be part of the submission to building control.

### **Part O**

10. Should we be worried about solar gain? How much will shading make a difference. When using the dynamic thermal modelling approach to compliance shading will likely be part of the solution to limiting overheating in dwellings. To what degree will vary depending on the characteristics of the building, orientation, location, etc...

### **Part S**

11. Does it apply to new builds only?

No, Part S will also apply to dwellings resulting from a material change of use and residential or other buildings that are undergoing major renovations.

12. When will I need electric vehicle charge points or ducting only?

The rules are different depending on whether it is for a new build dwelling, change of use to a dwelling, dwellings undergoing major renovations, new non-residential buildings or non-residential buildings undergoing major renovations. There is a cost cap on the average cost per charge point, if the cost cap is exceeded then you will only be required to install ducting to allow a charge point to be installed at a later date.

13. Cable routes 1 in 5 – is it just the infrastructure or the cable?

It is only the ducting / infrastructure that is required. Cabling would be installed when the charge points are installed, whenever that may be.

### **Transitional Provisions**

14. If an application has been submitted and the application fee paid, when do we need to start by?

On Full Plans and Building Notice applications received before 15th June 2022 work needs to have commenced before 15th June 2023 regardless of the status of the application (approved, conditionally approval or rejected).

15. The transitional provisions mentioned excavation of foundation only or laying of drainage – does the foundation also require concrete?

Yes, the foundation must be concreted and any drainage laid must be specific for the building and its position identifiable on the plans submitted.

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Colchester Borough Council has no affiliation with any of the products or manufacturers mentioned in this publication and remains completely impartial. You are free to choose different insulation types/brands as you see fit, provided that they are suitable for the intended use and meet the regulations.

We recommend designers seek further guidance from the relevant product manufacturers and use calculations and published construction details from manufacturers wherever possible.

