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| Building Control Guidance Note | Subject | New Regulations in a nutshell Conservation of fuel and power in dwellings - L1 | | | | | |
| | Issued | 09/05/02 | Rev | C | Page | 1 | of |
| Wessex Group of Local Authority Building Control services Bath and North East Somerset, Bristol City, Kennet District, North Somerset, North Wiltshire, South Gloucestershire, Swindon and West Wiltshire Councils. | | | | | | | |
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| <p>This guidance note highlights the main changes to the Building Regulations relating to the Conservation of fuel and power in dwellings - Approved document L1, which came into force on the 1st April 2002. We can only attempt here to deal with the key changes here, so in the case of any doubt or dispute, please refer directly to the Building (Amendment) Regulations 2001 and Approved Document L1 for a definitive statement of the law.</p> | | | | | | | |
| Key changes to U-values - | | | | | | | |
| Element | Old U-value | New U-value | Typical construction detail meeting new requirement | | | | |
| Walls | 0.45 | 0.35 | Brick outer skin with Thermalite or Celcon block inner leaf and a 75mm cavity filled with Rockwell / Dritherm etc. (85mm if dense blockwork) | | | | |
| Ground floors | 0.45 | 0.25 | Concrete floor with 100 mm flooring grade polystyrene or 65mm Styrofoam below or 50mm celotex. | | | | |
| Floor over an unheated space (an integral garage etc) | 0.60 | 0.25 | Timber floor with 250mm fibreglass, 120mm Cellotex or 140mm Styrofoam between joists. | | | | |
| Pitched roof with insulation at ceiling joist level | 0.25 | 0.16 | 100mm fibreglass between joists with a further 150mm fibreglass laid across - to give 250mm total thickness | | | | |
| Pitched roof with insulation following rafters | 0.35 | 0.2 | 50mm Cellotex (70mm Styrofoam) between rafters with a further 60mm Cellotex (70mm Styrofoam) fixed across face. to give a total thickness of 110mm Cellotex (140mm Styrofoam) | | | | |
| Pitched roof to Loft conversions with the insulation following rafters | 0.35 | 0.3 | 25mm Cellotex (35mm Styrofoam) between rafters with a further 40mm Cellotex (50mm Styrofoam) fixed across face to give a total thickness of 65mm Cellotex (85mm Styrofoam) | | | | |
| Flat roofs | 0.35 | 0.25 | 250mm fibreglass, 120mm Cellotex or 140mm Styrofoam between joists with 50mm air gap over – note that joist size is likely to be determined by this rather than structural needs. Warm deck construction using 80mm Celotex Double R TS1 boards or 100mm Styrofoam over the joists. | | | | |
| Glazing in timber or plastic frames | 3.0 | 2.0 | Double glazing with 16mm air gap and a "soft" low-E coating; or, Double glazing with a 12mm air gap, argon filled and a "soft" low-E coating | | | | |
| Glazing in metal frames | 3.3 | 2.2 | Double glazing with a 16mm air gap, argon filled and a "soft" low-E coating | | | | |
| Also note that :- | | | | | | | |
| <ol style="list-style-type: none"> 1. Walls and floors formerly treated as semi - exposed (between a house and an unheated garage for instance) must now meet the full U-value required for external walls and floors. 2. The maximum area of the windows, doors and roof-lights taken together should not exceed 25% of the total floor area. 3. Where calculations are produced using the Target u-value or carbon index methods, no part of a roof is allowed to have a U-value greater than 0.35 and no part of a wall or floor is allowed to have a U-value greater than 0.70. 4. For small extensions (for example a single room ground floor kitchen extension to a terraced property) the construction used should be no worse than that used for the existing dwelling but need not comply with the above. 5. New boilers (or replacement boilers to dwellings over 50m² floor area) must have a minimum SEDBUK value of 78% (if mains natural gas) 80% (if LPG) and 85% (if oil). | | | | | | | |

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| Internal lighting | | | | | | | | |
| Section 1.54 of the Approved Document to L1 requires that reasonable provision be made for the installation of energy efficient lighting, preferably in those areas where the lighting is expected to have most use. To achieve this it recommends the installation of at least the following number of light fittings, which will only take lamps having a luminous efficiency greater than 40 lumens per circuit-watt. | | | | | | | | |
| Rooms created | Number of light fittings required | | Rooms Created | Number of light fittings required | | | | |
| 1-3 | 1 | | 7-9 | 3 | | | | |
| 4-6 | 2 | | 10-12 | 4 | | | | |
| External lighting (fixed to building) | | | | | | | | |
| This includes lighting in porches, but not in garages or carports. The recommendation is that all external lighting should automatically extinguish when there is enough day light (or when they are not needed at night) and have sockets that can only be used with lamps having a luminous efficiency greater than 40 lumens per circuit-watt. | | | | | | | | |
| Heating and hot water systems | | | | | | | | |
| The recommendations for the control of heating systems are extended to include the following - | | | | | | | | |
| <ol style="list-style-type: none"> 1. Areas with differing heating needs (such as separate sleeping and living areas) should have individual temperature control - by the use of room thermostats or individual radiator valves. 2. Separate timing controls should be provided for space heating and hot water (except for combination boilers and solid fuel appliances). The system design must allow the provision of only space heating, only water heating, or both when required. 3. Boiler controls must include provision to prevent the boiler operation when neither the space heating system nor the hot water system requires heat. 4. Hot water storage vessels should have a minimum 35mm factory applied coating of PU-foam or the equivalent. Pipes and ducts should also be insulated, particularly where they run through unheated areas or outside. Hot pipework connecting to boilers and hot water storage vessels (including the vent pipe) should be insulated for at least 1m from the point where they connect. 5. All heating and hot water systems need to be fully commissioned to ensure they are operating at maximum efficiency and that all controls work as intended. The person who carries out the commissioning must provide a certificate confirming that it has been carried out properly to both the client and the Building Control Officer. Blank copies of such certificates are likely to be included with new boilers for this purpose. 6. Proper instructions to owners should be provided to inform them of how to operate the system efficiently, what routine maintenance is required and the benefits of conserving fuel and power. | | | | | | | | |
| Conservatories | | | | | | | | |
| By definition, a conservatory must have at least 75% of the roof and 50% of the walls made of translucent materials. Conservatories with no separation from the dwelling must be treated as internal part of the dwelling and must therefore meet the insulation requirements for the dwelling as a whole. Where separation is provided the requirements can be met if the conservatory is unheated, or by providing separate temperature and on/off controls to any heating in the conservatory area. | | | | | | | | |
| Limiting air leakage | | | | | | | | |
| The revised regulations call for reasonable provisions to limit air leakage, and allows for this to be demonstrated by pressure testing the completed building. Fortunately compliance can also be demonstrated by following "robust construction details", many of which are already accepted practice. The most notable requirements are - | | | | | | | | |
| <ol style="list-style-type: none"> 1. The cavity wall insulation must be taken down below damp course level, finishing at the same level as the underside of the floor slab insulation. 2. The cavity wall insulation and roof insulation must meet at the top of the wall (the detail used must also allow ventilation to be maintained if appropriate). 3. Cavity wall insulation must be carried up to the full extent of gable walls. 4. Floor joists etc must be set on joist hangers (and not built into the wall itself). 5. A 25mm upstand of insulation must be provided around the perimeter of floors, including where the floor slab touches outside wall (usually at door thresholds). 6. All cavity closures must be insulated | | | | | | | | |