

LOOK OUT!



A review of the challenges and opportunities affecting the British Plastics Federation Windows Group

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By now, we had expected to see the collated comments on the proposed revisions to Parts F and L of the Building Regulations, but so far nothing. Whilst the collated comments would not have told us what the Government's final decisions would be, it would have given us some indication of what would have been contentious and likely to cause ructions. The Minister of State, John Healey, (until now, I've never heard of him) is apparently attending EcoBuild on 2nd March and may well decide to make an announcement then given that we will be in election build-up mode and MPs will be hoping to gain favourable attention. If, as seems to be the consensus view, we have an election on 6th May, then purdah starts early April and the revised Regulations will have to be published by then. Otherwise the timetable could well slip and we may not see them published until October.

Of course, any changes to Part L will have an effect on the Code for Sustainable Homes. Communities and Local Government have produced a consultation document. At only 308 pages, you can fill a spare few minutes with it. Download from my website [here](#). More information is available from CLG's website [here](#). It states:

Summary

This Consultation version of the Technical guide is part of the *Sustainable New Homes: The Road to Zero Carbon: Consultation on the Code for*

Sustainable Homes and the Energy Efficiency standard for Zero Carbon Homes publication. The consultation closes on **24 March 2010**.

The purpose of this technical guide is to enable Code service providers and licensed assessors to deliver environmental assessments of new dwellings on the basis of the Code scheme requirements. The guide includes a list of issues associated with the building process which are known to impact on the environment, and for which performance measures to reduce their impacts can be objectively assessed, evaluated and delivered in a practical and cost effective way by the construction industry.

The consultation version of Code for Sustainable Homes Technical Guide has been drafted by the BREEAM Centre at the Building Research Establishment.

Perhaps of most interest to us is the proposed credits available for security. One credit is available for using doors to PAS 24, WCL1 (whatever that may be) or LPS 1175, and windows to BS 7950 or equivalent, with an additional credit if Secured By Design is complied with, or the recommendations of an Architectural Liaison Officer or a Crime Prevention Design Advisor are incorporated.

The situation with legacy additives in recycled PVC may be getting a little clearer. It has long been recognised, at least by industry, that cadmium containing material will be common in the recycling chain and that it would be the preferred option to keep it within the recycling loop. The European Commission recognised the problem and commissioned Risk and Policy Analysts to carry out a study and make recommendations as to the preferred options of dealing with cadmium containing products including PVC. For those with a lot of spare time on their hands can download and read the whole 564 pages (that is not a mis-type) from [here](#). However, should that prospect be less than attractive, here is a lengthy extract from the executive summary

Cadmium in PVC

In recent years, efforts have been made both by authorities and industry to reduce the presence of heavy metals in PVC articles. At the same time, industry has invested significant resources and effort in establishing and operating schemes for the collection and recycling of rigid PVC in the manufacture of construction articles. At present, a concentration limit on cadmium in PVC applies for articles such as pipes, flooring, cabling and

related items but not for profiles, square cable ducts or roofing. The implication of an expansion of the recycling of PVC waste into new construction articles in the EU is that pipes and round cable ducts which may contain recyclate may inadvertently be placed on the market with a cadmium concentration exceeding the regulatory limit of 100 ppm. There is a fear that adherence to the 100 ppm cadmium content limit could have significant adverse effects for the future of recycling of PVC construction waste in the EU.

To address the risk of such adverse effects whilst keeping the environmental and human health impacts of PVC stabilised with cadmium in perspective, we have considered a range of policy options (apart from the 'business as usual' option):

- a complete restriction on the use of cadmium in PVC (Option P2);
- maintaining the current restriction and introducing an exemption for rigid PVC construction articles (Option P3);
- a complete restriction on the use of cadmium in PVC with an exemption for articles, if manufactured with PVC recyclate (Option P4);
- a complete restriction on the use of cadmium in PVC with an exemption for specified rigid PVC construction articles, if recycling takes place in a closed loop (Option P5).

Overall, it is expected that:

- when a policy option increases the amount of waste going to incineration, there will be negative impacts for the environment (and human health via the environment);
- when a policy option increases the amount of waste going to landfill, there will also be negative impacts for the environment (and human health via the environment); and
- when a policy option decreases the amount of waste being used as a recyclate, additional amount of PVC would need to be manufactured with negative environmental impacts.

As heavy metal compounds are encapsulated in the PVC matrix, the environmental impacts from cadmium in recycled material are not expected to be significant (i.e. a release is not possible in normal use but only in the compounding of PVC, during waste disposal through incineration and landfill, or due to accidental fires). In relation to incineration and landfill, it is assumed that operation of these adheres to the requirements of existing legislation (i.e. Waste Incineration Directive (Directive 2000/76/EC) and Landfill Directive (Directive 1999/31/EC); thus, there will be no significant impacts due to increased concentrations of cadmium in PVC due to current limits on emissions of heavy metals.

Our analysis has shown that, due to the nature of PVC recycling activities in the EU, Option P5 would have impacts largely equivalent to some of the other options considered. Also, the two key applications are profiles/square cable ducts and non-pressure pipes/round cable ducts. For the former, Options P1 ('business as usual'), P2 and P3 have been considered as relevant, while for the latter, Options P1, P3 and P4 have been considered as

relevant. Among them, a time-limited derogation under Option P4 has been considered.

We have split our analysis between profiles/square cable ducts, non-pressure pipes/round cable ducts and flexible roofing as profiles/square cable ducts do not need to meet a cadmium limit at present and each policy option would have different impacts upon the respective industry sectors. For the monetisation of environmental and human health impacts under each policy option, we have combined (a) the differences in tonnages of waste recycled, landfilled and incinerated and differences in virgin PVC resin manufactured under the 'business as usual' compared to the other policy options with (b) externality or damage cost values (expressed in €/tonne) derived mostly from past studies undertaken on behalf of the European Commission. These damage cost values reflect estimates of the health and environmental impacts arising from emissions associated with the various activities.

With regard to **profiles/square cable ducts**, our analysis suggests:

- maintaining the 'business as usual' situation would allow (a) increased recycling at a time of increasing annual waste arisings, (b) businesses to make use of existing investments into recycling equipment, and (c) the continuation of existing dedicated collection and recycling promotion schemes;
- 'business as usual' represents the cheapest waste disposal option for waste collectors and provides for increased consumer choice (higher availability of products manufactured out of recycled material than under Options P2 and P4); but
- 'business as usual' results in cadmium concentrations in waste that do not decline below 100 ppm at any time during 2010-2050; and
- the relative environmental and human health benefits under 'business as usual' clearly exceed those under either of the remaining two policy options (P2 and P4). This is mainly due to the fact that recycling (which appears to be the most environmentally friendly and possibly also the least costly waste management option in relation to PVC profile waste) would be substantially reduced if the measures outlined under Options P2 or P4 were to be implemented.

With regard to **non-pressure pipes/round cable ducts**, our analysis suggests:

- the current 100 ppm cadmium content limit on pipes and round cable ducts already negatively affects the recycling of PVC waste and could potentially lead to the PVC pipe industry abandoning mechanical recycling of PVC waste altogether, according to industry sources;
- instead, a higher cadmium content limit would be likely to result in cost savings for waste collectors and pipe manufacturers and would encourage waste recycling companies to expand their operations in the EU;
- encouraging recycling would increase consumer choice and could potentially result in lower market prices for non-pressure pipes;

- the monetisation of externalities indicates that options resulting in a relaxation of the existing cadmium limit result in lower adverse environmental and human health impacts associated with (a) the landfilling and incineration of PVC waste and (b) the manufacture of virgin PVC which would have to be used instead of PVC rigid waste recycle;
- a higher cadmium content limit would support the 'controlled' flow of cadmium from one generation of PVC articles thus avoiding releases to the environment and potential human exposure associated with other forms of disposal (i.e. incineration); and
- encouraging recycling is in line with the general principles of waste management in the EU.

Whilst our conclusion has been that there is clear merit in relaxing the existing cadmium content limit for pipes and round cable ducts, there is significant uncertainty in the analysis of future consumption of mixed rigid waste recycle and the cadmium content of waste. Therefore, the indefinite relaxation of existing restrictions may not be the most appropriate or prudent course of action. Instead, a time-limited derogation would allow PVC recycling activities to expand without the fear of cadmium concentrations limiting saleability. It would require though that a new evaluation is undertaken in the future to establish more conclusively the presence of cadmium in waste and in finished articles and the future ability of the pipe industry to meet the cadmium content limit of 100 ppm.

With regard to **flexible roofing**, our analysis indicates that, given the apparent lack of adverse impacts, the introduction of a 100 ppm concentration limit for cadmium in flexible PVC roofing placed on the EU market (Option P2) would be preferred. However, the uncertainties associated with the data on which this conclusion is based, as well as the fact that it was not possible to conduct an impact assessment to the same level of detail as for profiles/square cable ducts and non-pressure pipes/round cable ducts should be taken into consideration. Rigid PVC roofing is not currently recycled in the EU and it has not been given detailed consideration.

In summary, on the basis of the analysis of possible costs to stakeholders and particularly the monetisation of the externalities arising under the different policy options, our proposed option for profiles/square cable ducts is to maintain 'business as usual', for pipes/round cable ducts, to raise the existing limit to 1,000 ppm for non-pressure pipes and round cable ducts for an initial period of 10 years (at the end of this period, a detailed evaluation of the presence of cadmium in waste and new articles should be conducted before further action on the cadmium limit is taken), and for flexible roofing to introduce an EU-wide cadmium concentration limit of 100 ppm.

Unfortunately, we were unable to get a material/testing expert to the recent meeting of TC33/WG1/TG5 looking to revise EN 12608. At that meeting, those who attended agreed to insert this suggestion for Charpy impact resistance in the proposed revision

<i>Profile Type</i> *	Profile Class	Profile thickness	ISO 179-1/1fA	ISO 179-1/1fA after artificial weathering	Impact reduction upon artificial weathering
<i>I (ie., impact modified profiles)</i>	A	≥ 2.8 mm	≥ 55 KJ/m ²	≥ 33 KJ/m ²	$\leq 40\%$
<i>I (ie., impact modified profiles)</i>	B	≥ 2.5 mm and < 2.8 mm	≥ 60 KJ/m ²	≥ 42 KJ/m ²	$\leq 30\%$
<i>I (ie., impact modified profiles)</i>	C	< 2.5 mm	≥ 65 KJ/m ²	≥ 52 KJ/m ²	$\leq 20\%$
<i>0 (ie., without impact Modifier)</i>	A&B	≥ 2.5 mm	≥ 20 KJ/m ²	≥ 18 KJ/m ²	$\leq 10\%$

Dimension of Charpy bar is 50 x 6 x class (profile thickness) [mm]

Not being a material or test expert, I have no idea how our profiles would meet these requirements so we need those who are experts to check these values. Why there is a need for these revisions I have no idea. Is there a problem out there that I'm unaware of?

The next meeting of TG5 is in June.

Reference	BPF Windows Group Publications	Price ea.
SEL/3	Selecting the standard	£5
323/1	COP for the reinforcement of high impact modified PVC-U windows and doors	£10
332/1	Guidelines for the welding of PVC-U profiles for windows and doors	£10
333/1	Guidelines for welding : Laminated shopfloor checklist, A4 size	£3
334/1	Guidelines for welding : Laminated shopfloor checklist, A3 size	£4
336/1	Guidelines for the measurement of PVC-U colour and gloss	£10
337/2	Guidelines for the design and installation of PVC-U conservatories	£25
340/1	Conservatories - Laminated planning permission flow chart, A3 size, 1993	£4
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351/1	Guidelines for the use of PVC-U windows and frames in commercial/light industrial applications	£10
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360/1	Specification for sliding patio doors made from PVC-U extruded hollow profiles	£15
W363/1	Guidelines for the selection and application of fasteners for the manufacture of plastics windows and doorsets	£20
	Guide to Building Regulations, Building Control and FENSA (CD or booklet)	£5ea
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