

**Brighton & Hove City Council**  
**For general release**

**Meeting:** Housing Management Sub-Committee

**Date:** 6 March 2007

**Report of:** Head of Repairs and Maintenance

**Subject:** Use of PVC Materials in Housing Repairs

**Ward(s) affected:** All

**1. Purpose of the report**

- 1.1. To inform the Housing Management Sub-committee of the recommendation of the Sustainability Commission on the future use of building components and materials made with Polyvinyl Chloride.

**2. Recommendations**

- 2.1. That the Housing Management Sub-Committee note the content of the report of the Sustainability team presented to Sustainability Commission on 17 January 2007.
- 2.2. That the Housing Management Sub-Committee recommend Officers continue with the current flexible approach, determining for each project the most appropriate materials taking account of up to date environmental issues and knowledge, residents' requirements and building maintenance costs.
- 2.3. That the Housing Management Sub-Committee request the Sustainability Commission to update their report in the light of the research expected to be included in the forthcoming revision of the Green Guide to Building to be published by the Building Research Establishment (April 2007).

**3. Information/background**

- 3.1. Brighton & Hove City Council Sustainability Commission at its meeting of 10<sup>th</sup> March 2004 requested the Housing Management Sub-Committee give consideration to use of window frame materials other than PVC-U (Unplasticised Polyvinyl Chloride) on account of

perceived environmental considerations.

(Minute 44.2 **RESOLVED** - That a report be prepared for the Housing Management Sub-Committee considering the ecological impact of the use of PVC-U window frames throughout the councils housing stock.)

- 3.2. Housing officers proposed a report to Housing Maintenance sub-Committee at its meeting of 23 May 2006. The Sub-Committee deferred the recommendations made within the report in lieu of a report from the councils' Sustainability Team in respect of the matter.
- 3.3. Sustainability team submitted their own report "Sustainability of uPVC" to the Sustainability Commission on 17<sup>th</sup> January 2007. The report is attached as Appendix 2.

#### 4. Further information

- 4.1. A desk-top study of the environmental impact of window frame materials was carried out by Housing Officers using information within the public domain. Various organisations have produced reports on the implications of the use of particular materials. Most of these reports are published to defend an organisation's particular stance or interest, and should therefore be treated with a degree of caution.
- 4.2. Housing officers remain concerned that documents relied upon by the Sustainability Team and stated as independent are either dated or written by persons and organisations with direct forestry interests. In particular the following providers of analyses of PVC products in use were stated: Buildings Research Establishment, DEFRA and United Nations FAO,
- 4.3. The BRE research was published in 1998 and was provided by TRADA (Timber Research and Development Association), DEFRA commissioned its papers in 2000 from ENTEC, and the UN FAO (Food and Agriculture Organization of the United Nations) report is "Environmental And Energy Balances Of Wood Products And Substitutes." by Dr Mohammad Scharai-Rad, University of Hamburg, Department of Wood Technology and, Dr Johannes Welling, Federal Research Centre for Forestry and Forest Products, Hamburg, Published Rome, 2002, and placed on the FAO by the Forestry Department.
- 4.4. It is of concern that, despite comment from Housing Officers, the Sustainability Team took no note of a more recent study conducted by the European Union Commission, "Life Cycle Assessment of PVC and of Principal Competing Materials". The report states: "For windows, one of the most important PVC applications, the available studies conclude that there is no "winner" in terms of a preferable

material since most of the studies conclude that none of the materials has an overall advantage for the standard impact categories. The most promising potential for lowering environmental impacts of windows is expected through the optimisation of the design. Therefore the choice of material is of rather minor importance, as long as the material can provide the required system quality of the window." This study considered a number of LCA reports from across the EU and commented on the robustness of each report. The conclusions reached in the EU study were drawn upon the information provided in the various LCA's available in the public sector.

- 4.5. The Financial and Legal comments provided to the Sustainability Team's report warn of the financial implications of using alternative materials. The prime recommendation of the report at paragraph 10 is: "Given the increasing problems with PVC waste, the continuing unknowns related to hazards and toxicity, and the environmental impacts through the PVC life cycle, that the council avoids PVC use where feasible."
- 4.6. The prime uses of PVC in buildings are:
  - Wiring
  - Pipe work, Wastes, Drains and Rainwater Goods,
  - Cladding
  - Windows and Doors
  - Features such as soffits, bargeboards, etc.
  - Flooring.
- 4.7. All the above can readily be provided in materials other than PVC, although even Mineral Insulated Copper Covered wiring now always contains a proportion of PVC for identification purposes. Alternative materials are frequently more costly in terms of purchase and fitting. Most alternatives are also more demanding in ongoing maintenance and thus would impose additional revenue costs.
- 4.8. Environmental impact assessments for alternative materials are available but do not demonstrate overwhelming benefits or disadvantage from the alternatives studied.
- 4.9. Officers note that the Building Research Establishment, the prime UK authority, has relied on information and research that has been superseded by developments in materials recycling. The BRE has undertaken a substantial revision of its Green Guide to Building, which is now expected to be published in April 2007. The Subcommittee is therefore recommended to ask the Sustainability Commission to provide and update report taking proper account of the more recent developments and publications.

## 5. Financial Implications

5.1. The table below gives indicative capital costs for technically feasible alternatives. Note that the costs for doors and windows are standard costs from a single national supplier, there is no competitive element in the comparison.

	PVC Cost	Alternative Cost
Wiring	PVC insulated cable with PVC trunking £1750 per house	There are no PVC free alternatives, but Mineral Insulated Copper Covered cable is readily available. It is frequently replaced with PVC under present programmes of work. Cost £5500 per house.
Rainwater Goods	PVC Rainwater system £350	Seamless Aluminium rainwater system £450
Window (1770x1200)	PVCu Window £300,	Timber £489, (secure by design, factory finished £693),
Doors	PVCu Door £540 Composite door £860	Hardwood door £476, (unfinished, lock to be provided.)
Flooring.	PVC Flooring £7 per sq.m	Linoleum Flooring £15 sq.m

- 5.2. Within the prospective major works programme to deliver decent homes there is a requirement to deliver new windows to 3500 homes, and to rewire 7500 homes.
- 5.3. Specification of timber windows would add about £8.5 million to the five year major works programme, and £22 million to the 30 year housing business plan.
- 5.4. Specification of mineral insulated copper covered wiring is considered by engineers to be unrealistic. The additional cost within the five year major works programme is estimated at £8 million.
- 5.5. Where timber products provide the logical alternative, ongoing revenue costs must also be taken into account. Where access plant is required, for health & safety reasons, the maintenance implication for future revenue will be high.

- 5.6. Officers have been progressively reducing the revenue requirement for redecoration of external parts of homes through specification of products that do not require painting. Reintroduction of the requirement for regular painting will progressively increase annual revenue costs to an estimated £1.2 million.
- 5.7. It is recommended that Officers should consider the cost implications of alternative materials as part of an options appraisal process when specifying materials for future programmes of work.

## 6. Conclusion

- 6.1. The decision as to what material should be specified for building components is subjective. Good quality products are available in all materials.
- 6.2. In selecting a material to use, consideration must be given to the maintenance requirements, and the likelihood of the required level of maintenance being given in practice.
- 6.3. The capital and revenue costs applicable to material selection must form an important part of decision making.
- 6.4. There is no clear evidence that the environmental impact of the use of timber in replacement window frames is presently lower than the impact of PVC\_U. Some evidence would suggest that PVC has better prospects for recycling, and that PVC products also provide better thermal insulation performance. In this respect the report of the Sustainability Commission has not fully considered associated costs, or the environmental implications associated with alternative materials.
- 6.5. Residents should be consulted fully over the selection of component materials, especially with respect to window frames where internal redecoration will be a requirement for ongoing durability.
- 6.6. Within Brighton & Hove, conservation area considerations will require the continued use of timber windows and other components.

## 7. Consultation

- 7.1. This document has not been submitted to the Housing Area panels for comment.

## COMMITTEE REPORT APPENDIX

<b>Meeting/Date</b>	<b>Housing Management Sub Committee 6 March 2007.</b>	
<b>Report of</b>	<b>Head of Repairs and Maintenance</b>	
<b>Subject</b>	<b>Use of PVC Materials in Housing Repairs.</b>	
<b>Wards affected</b>	<b>All</b>	
<b>Financial implications</b>		
<p>The report recommends, that as is current practice, the type of material used is determined for each project taking account of up to date environmental issues and knowledge, residents' requirements and building maintenance costs. The costings in paragraph 5 suggest that there are substantial cost implications to using alternatives to PVC. As financial resources are limited, any extra costs will mean a reduction in the amount of work that can be undertaken within the HRA Capital Programme, therefore reducing the ability to meet the Decent Homes standard.</p> <p><i>Finance Officer consulted: Monica Brooks, Principal Accountant, 13/02/07</i></p>		
<b>Legal implications</b>		
<p>The report recommends flexibility in the approach that is to be adopted when making project planning decisions on the appropriate use of PVC and non-PVC materials when carrying out repairs and maintenance of the Council's housing stock.</p> <p>Local authorities are required to comply with EC public procurement rules and regulations as well as best value requirements. Local authorities are further required to give due consideration to sustainability at each stage of any procurement cycle and to develop strategies for sustainability development.</p> <p>Local authorities are under a statutory obligation to keep its housing stock in repair as well as have regard to its statutory duties and in the exercise of its powers in relation to the environment, which includes waste collection and disposal.</p> <p>The recommendations in the report are not inconsistent with the local authority's statutory, regulatory and legal duties and powers.</p> <p><i>Lawyer consulted: Celine Hayden</i></p>		
<b>Corporate / Citywide implications</b>	<b>Risk assessment</b>	
The decision on the material to be used in window replacement contracts would have city wide implications	Risks are assessed for each specific contract involving replacement building components. Principal risks are those of Performance in Fire, Thermal Resistance, Resistance to	

	Unlawful Entry, Health & Safety of Operatives.
--	--

<p><b>Sustainability implications</b> Sustainability implications are discussed in the body of the report.</p>	<p><b>Equalities implications</b> All projects carried out include full consideration of various equality issues and specifically the implications of the Disability Discrimination Act. Consideration must be given to the implications for disabled persons being able to undertake future maintenance.</p>
<p><b>Implications for the prevention of crime and disorder</b> Physical security is a key output of the major works renewal programme.</p>	
<p><b>Background papers</b> <i>[Part 1 reports only]</i> A large number of background sources were consulted in the drafting of this report. Members are referred to the following prime sources:- “Lifecycle Assessment of Polyvinyl Chloride &amp; Alternatives”. (Entec UK for DEFRA 2000) “Recycling Your Window Waste, Good Practice Guide”. (WRAP 2004) “Options &amp; Risk Assessment for Treated Wood Wastes”. (TRADA / WRAP 2005) “Support for Recovinyl PVC Recycling System”. (WRAP 2005) “Changes in Legislation and Policy Guidance in Relation to Refurbishment Window Joinery for Local Authority Housing Stock” (Vail Williams 2006) “Life Cycle Assessment of PVC and of principal competing materials” (Commissioned by the European Commission, July 2004) The above reports are lengthy and are held electronically by the contact officer below.</p>	
<p><b>Contact Officer</b> Peter Matthews, Planned Maintenance Manager, Oxford Street Housing Office. Telephone: 29 3370 email: Peter.matthews@brighton-hove.gov.uk</p>	

