

Attention: The Secretary
Senate Inquiry: Energy Efficient Homes Package

REQUEST TO LODGE NEW SUBMISSION
Electrical issues not addressed

I have provided written and oral testimonies to the Senate Inquiry – Home Insulation Program(HIP) - in the name of Wren Industries/Tim Renouf regarding summer thermal performance claims of bulk insulations (Submission 15, Public Hearing 17 Feb, Answers to Questions 12). Wren is a manufacturer of foil insulation, in the form of Concertina Foil Batts.

The following comments are not to be construed as expert commentary about electrical cabling and regulations, rather they are observations made to the best of my ability.

The last week has seen two Melbourne fire reports regarding bulk insulations and fires.

1 June DOWNLIGHT & FANS

<http://www.theaustralian.com.au/news/nation/more-fires-as-senate-chews-on-batts-fallout/story-e6frg6nf-1225873747871>

29 May CABLING COVERING BULK INSULATION

<http://www.theaustralian.com.au/news/nation/pm-admits-failure-after-insulation-fire/story-e6frg6nf-1225872744391>

Taking into account the closing time frame for the Senate Inquiry to conclude its Report on 22 June, I believe that even at this late stage, questions need to be directed to the electrical industry to answer. At no time has scrutiny been undertaken by the media or the Senate into the complexity of electrical safety and insulation materials.

Suggested questions to the electrical industry

- a) the positioning of electrical wiring in ceilings – are they clipped to sides of ceiling joists, or over the tops of joists? I understand that the intention of wiring regulations is that cables are not on top of joists so as to avoid being fractured if stepped on.
- b) type of wiring capable of being covered by bulk insulations, ie this requires an identification of cable “current carrying capacity”.
- c) the proximity of foil insulations to electrical cabling, ie the ability of cabling to cover over foil insulations. If cabling is deemed safe (commencing with the cabling being insulated) then foil insulations are capable of being laid over or in close proximity to cabling with safety.
- d) proximity clearances to downlights – this would appear to be adequately explained in the Wiring Rules AS/NZS3000(2007) Amdt-1(2009), which now over rides the requirements of AS3999(1992) “Thermal Insulation – Installation Requirements”, which is effectively an out of date Standard. NOTE: AS3999 does not include foil insulation installation and a case has been put to Standards Australia to do so.

Bulk insulations create a condition that is conducive to heat buildup in some cables(pre-1989 is a rough guide) getting overheated when covered by bulk insulations, whereas more modern cabling(post 1989) can be covered safely, according to AS/NZS3008.1.1(1998) – refer Table 2(2), which describes “current carrying capacities” of electrical cables partially or fully surrounded by materials including bulk insulations – referred to as “de-rated” cables.

In all stages of HIP, no advice or reference was ever made to AS/NZS3008.1.1, but only to AS/NZS3000 and AS3999. However I understand that the latter phase of the HIP mandatory endorsed training, concluded that any electrical cabling – old or newer derated cables – could not be sandwiched (ie fully surrounded) between differing layers of bulk insulations because of risk of overheating. Typically this was occurring in the HIP(and possibly insulation installations prior to HIP) where existing bulk insulations with cables laid on top, then had more bulk insulation added. The question here is: when is cabling safe? What is the truth? Will every house under HIP have to be inspected to determine safety relating to cable current carrying capacity? This uncertainty is sufficiently alarming because of the continuing spate of house fires caused by bulk insulations.

Bulk insulations also frequently demonstrate fire risk in the HIP caused by downlights overheating because clearance requirements were not enforced(as per AS/NZS3000). Foil insulations are expressly exempt from any “overheating” requirements in AS3008.1.1 because they automatically have free circulation of air around them. Foil insulations and cabling are highly unlikely to cause fires. Electrical conduction to building materials, such as foil insulations, is a totally separate subject, and it is worth repeating that, to the best of my knowledge, there are no reported deaths by electrocution from the use of foil insulations since 1953, when foil was introduced into Australia.

29 May news report concludes that electrical wiring being covered by insulation (bulk) caused the fire. 1 June news report concludes that bulk insulation proximity to downlights (and possibly fans) was likely to have caused the fire. It is now apparent that fires associated with bulk insulations will not end until every home under the HIP program is inspected.

UGL has been engaged to put into effect the HIP program rectification for HISP(Home Insulation Safety Program) and FISP(Foil Insulation Safety Program) and final checking policies are yet to be released. So far, the electrical industry appear to have accepted no responsibility whatsoever for what happened in the HIP and a very simple question can be put: when is electrical cabling and appliances in ceilings compatible with insulation materials? In order for UGL to properly advise the government about HISP and FISP, it is incumbent on them and the electrical industry to explain the functionality of the electrical regulations. Considering the continuing cases of insulation fires, it would appear that a clear case exists that all houses under HIP be checked for safety, and also checked for thermal performance if federal funding permits.

Foil safety issues are very likely to be restricted to where electrical “conduction” from metal staples is demonstrated.

The media don't seem to be interested in understanding all the complex electrical issues – they should, because it goes to the heart of safety. If the Wiring Standards are unclear and/or not being enforced(eg careless laying of cables, instead of clipping to sides of joists) – then a light should be shone onto this. A vast amount of wiring across Australia is put in ceilings in a manner that suits the electrical industry and, one could conclude, in contravention of the facts or the intentions of the electrical Standards. When cabling lies over joists, this is the possible reason for the two deaths under HIP where foil insulation and metal stapling were used, caused by untrained contractors. In other words, had the Wiring regulations been enforced correctly with cables fixed to the sides of ceiling joists, then any foil stapled to tops of ceiling joists could not cause electrocution. It can also be reported that foil over tops of joists has been successfully and safely undertaken in QLD for the past 30 years prior to the HIP.

The electrical industry needs to contribute to the Senate Inquiry beyond their written testimonies. The electrical industry is currently working with government very closely, and one conclusion could be that they don't want the bright light of HIP responsibilities shone onto their industry. As I said earlier, I am not some kind of electrical expert. But I feel that clarity of the electrical regulations needs to happen and the Senate Inquiry should be involved.

In order for lessons to be learnt from the failings of the Home Insulation Program, it is important to recognize that accountability of Standards and Regulations is enforced so that insulation materials - bulk or foil - are electrically and fire safe, and provide reliability about thermal performance claims, both winter and summer.

Thank you for consideration of this late submission.

Regards,

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