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PUBLICATION OF THE COST BENEFIT ANALYSIS (CBA) OF OPTIONS TO REDUCE THE RISK OF FIRE IN AREAS OF NEW BUILD

Summary

1. This submission seeks approval to publish the outcome of a research looking at the cost benefit analysis of sprinkler provision in areas of new build housing.

2. The research was commissioned in 2008, in response to concerns from a number of senior FRS officers that the Government's housing target of 160,000 additional homes in the Thames Gateway by 2016 would increase the population and housing density in these areas and potentially create an increased demand on local FRAs. Fire stakeholders therefore suggested that it maybe more cost effective to install sprinkler systems in the new houses rather than build new fire stations, taking into account other potential costs and benefits such as trade-offs which might be made to planning requirements. Officials were asked to commission research to establish whether fitting sprinklers would be cost effective

2. NERA Economic Consulting carried out the research which has concluded that:

- the value of installing sprinklers in all new housing would fall far short of the costs;
- there are few FRS resource savings from sprinklers in new Thames Gateway housing, as resources are still required for existing housing and other incidents; and
- there is good existing FRS coverage in Thames Gateway, so few cases where additional FRS resources yield substantial benefits for domestic housing.

You will wish to be aware that NERA also concluded that there was some limited and uncertain evidence to suggest that installing sprinklers in some new social housing might be cost-effective in some cases. Our views on this are covered in Presentational issues – para 16.

Timing

3. Routine.

Recommendation

4. That you note the findings of the report; and agree publication of the report on the Departmental website.

Background

5. There is a long-standing lobby for sprinklers in schools, new build properties and existing social housing. However, sprinklers are expensive and so have performed poorly in previous cost benefit analysis research undertaken by Sustainable Buildings Division.

6. The Government's primary interest is life safety. This is reflected in both the Building Regulations and in the Regulatory Reform (Fire Safety) Order 2005 '(the FSO)'. Part B of the guidance for the Building Regulations seeks to ensure that where new buildings are designed and constructed (or where existing buildings are extended, change use or are substantially altered) they have adequate fire safety measures to protect lives in the event of a fire.

7. The CLG fire policy view is that sprinklers have a role to play in protecting life but they are not a panacea. Our view is that they should be considered as part of the package of measures available to deliver effective risk reduction or mitigation and targeted at buildings where the occupants are most at risk from fire where this is cost beneficial. The 2007 review of the fire safety aspects of the guidance for the Building Regulations found that while sprinklers would appear to be effective in reducing casualties, they would not appear to be cost effective from a life safety perspective in most types of buildings - they are cost effective only in premises housing the most vulnerable.

8. Under the Government's better regulation policy, any new regulatory measures that we introduce, including through the Building Regulations, must be proportionate, evidence based and justified. In fire safety terms this means the value of the lives that could be saved and the injuries prevented outweigh the costs. Following the 2007 Review of the Building Regulations, we concluded that we could only justify requiring sprinklers to be installed in those situations where they represent a cost effective life safety solution. Specifically in:

- all new build blocks of flats over 30m (typically 10 storeys), and
- new offices, shops, industrial buildings and assembly buildings over 30m;
- new large single storey shops;
- new large single storey storage buildings; and,
- shopping malls

9. Guidance on the Building Regulations does, however, actively promote their use as an option in care homes where their installation offers greater design freedom; and the DCSF have issued guidance (BB100) to all LAs recommending that new schools are sprinklered as a property protection measure given the high incidence of arson in these buildings.

Consideration

10. Following the Government's announcement to build 160,000 additional homes in the Thames Gateway between 2001 and 2016, senior fire stakeholders argued that the new developments such as this will increase the population and housing density in these areas potentially creating increased demands on local Fire and Rescue Authorities. Stakeholders also argued that new fire stations might have to be built to deal with the additional demands. Your predecessor (Parmjit Dhanda) asked officials to undertake a cost benefit analysis of options to address fire and community and safety needs in the Thames Gateway area.

11. NERA Economic Consulting was appointed to undertake the work, which looked at four options:

- I. do nothing (defined as maintaining the existing FRS provision in the region);
- II. installation of British Standard sprinklers in all new buildings including any associated potential trade offs without additional fire and rescue resources;
- III. installation of British Standard sprinklers in all new dwellings which are part of the social housing sector, without additional fire and rescue services; including any associated potential trade offs and,
- IV. development of additional fire and rescue service resources, such as fire stations, in the areas of new dwellings without installing sprinklers in the new dwellings.

12. The work looked at the benefits of sprinklers in all new dwellings in 2007, 2020, and 2050 in reducing fire fatalities, injuries, property loss and CO₂ emissions, compared to the costs of installing sprinklers in the new dwellings, including any associated potential trade offs, and ongoing maintenance costs up to 2050. The research findings were consistent with previous studies in suggesting that the value of the benefits of installing sprinklers in **all** new housing would fall far short of the costs. In particular, the research found that for all new housing the costs were as follows:

Sprinkler benefits = £135m
Sprinkler costs = £-382m
Net benefits = **£-248m**

13. The research found some limited and uncertain evidence that installing sprinklers in new social housing might be beneficial if sufficient numbers were built in a development. However, current planning policy of mixing social and private tenure means that any marginal benefits of sprinklers are unlikely to accrue.

14. A key finding of the research was that there is good existing FRS coverage in Thames Gateway, and that current levels would be able to absorb the additional demands upon the FRS from the new developments. Annex A provides a summary of the research.

Presentational Issues

15. Although the outcome of the NERA research will be a disappointment to the sprinkler lobby, we believe it should help to draw a line under some of the sprinkler debate. The research was a comprehensive cost benefit analysis of the benefits and costs of installing sprinklers in all new housing in Thames Gateway, and looked for the

first time at wider potential benefits such as relaxation in planning and contribution to reducing CO₂ emissions. However, even including these, the benefits of installing sprinklers in all new dwellings still fell far short of the costs.

16. The research did find some limited and uncertain evidence to potentially support sprinklers in new and large social housing developments. Although current planning policy of mixing social and private tenure means that any marginal benefits of sprinklers are unlikely to accrue, the sprinkler lobby may use this to support calls for sprinklers in new social housing. Our view, formed within the constraints of both the better regulation and new burdens policy agenda, is that it may be appropriate for providers of new social housing to consider, on a case by case basis, whether the benefits of sprinkler provision would outweigh the costs. However, it must be a matter for the providers themselves to consider whether installing sprinklers would be justified. Any compulsion, expectation or other pressure from Government to do so would, for local authorities, amount to a new burden, for which CLG would need to provide additional funding. There is certainly no compelling evidence from this study to suggest that legislating for sprinklers in all new social housing would be justifiable or affordable.

17. Following the fire fatalities at Lakanal House, the sprinkler lobby has called upon Government to retrospectively require sprinklers in tall blocks of social flats. However, to retrospectively install sprinklers is very expensive. For example, a conservative estimate suggests that there are around 2,000 high rise residential buildings in England to retrospectively install fire suppression systems in a high rise block of flats is estimated to cost in the region of £800k to £1 million per block (based on estimates from the Building Research Establishment). Therefore, to install sprinklers in all high rise blocks would cost around £2bn as well as the costs associated with decanting, and ongoing maintenance costs. However, the National Fire Sprinkler Network suggests the cost could be as low as £150k per block. The lobby met recently with Terrie Alafat to discuss a possible pilot project to test cost assumptions and have drafted a scoping paper setting out how this might be taken forward. We are considering the proposal in conjunction with Housing colleagues.

18. The NERA research and report has been independently peer reviewed by Professor Roger Plank, Sheffield University. Professor Plank was satisfied with the approach and methodology taken by NERA, and agreed that the conclusions were correct.

Finance

19. There are no financial implications from this report. Costs of publication will be found from existing fire policy budgets.

Legal

20. There are no legal implications for policy.

Media/Communications

21. The report will be made available on the departmental website but not widely publicised. We engaged the key stakeholders to ensure their awareness of the outcome of the research at a stakeholder meeting on 19th January.

22. Fire stakeholders will be disappointed with the outcome of the research. We therefore suggest the following lines:

- Sprinklers can be an effective risk mitigation measure, particularly where their provision is targeted at buildings where the occupants are most at risk from fire.
- However, they are not a panacea and it is important they are considered as part of a package of measures, both active (e.g. smoke alarms) and passive (fire resistant construction materials and compartmentation) and effective building management.
- The NERA research findings were consistent with previous studies in suggesting that the value of the benefits of installing sprinklers in all new housing would fall far short of the costs.
- The research did find some limited and uncertain evidence that installing sprinklers in new social housing may be cost-effective in some cases. It may therefore be appropriate for providers of new social housing to consider sprinklers on a case-by-case basis.

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