



Welcome



*By Judith Harrison,
Director, The
Housing Forum*

In the wake of hurricanes Katrina and Rita in the US, a major theme of this Newsletter is **water**, and how best to manage it.

Our first Newsletter was launched at this summer's Chartered Institute of Housing conference in Harrogate. From now on members of the Housing Forum will receive the Newsletter quarterly.

We're also planning to make the content of the Newsletters available, each year, to non-members. We hope to make our first Annual Newsletter available for the **next Housing Forum conference**, which will take place on **28 February 2006**.

Through the Newsletter, we will keep you updated on innovation in the supply of new homes. Some of the innovations we cover will be the subject of practical engagement by the Housing Forum and its members.

As we go to press, we eagerly await the following:

- National Audit Office study on using modern methods of construction to build homes more quickly and efficiently.
- Home Builders Federation report on recommendation 33 of the Barker Report. The report will cover barriers and solutions to MMC, and the broader question of innovation in new homes.

Backed by the ODPM and the DTI, the Board of the Housing Forum is poised to act as the main arena, across the whole of the UK housing sector, through which the ideas in these reports are discussed, developed and implemented.

If you have any comment to make on this Newsletter or the activities of the Housing Forum, I'd be delighted to hear from you.

Floods and Housing



*By James Woudhuysen,
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AND
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In the summer of 2004, the Cornish village of Boscastle was hit by a flash flood. At the height of the tourist village's busiest season, 200mm of rain fell over the area in 24 hours. The catchment area of the Jordon and Valence rivers that flow through Boscastle is relatively small, at 20 square kilometres, but the surrounding hills rise steeply by 300m over 6km. On 16 August, heavy lunchtime rain was followed quickly by a rise in river levels. By 3.45pm cars in the packed visitor car park began to float. At 4pm a 3m wall of water swept through the village forcing people to retreat into attics. Within 10 minutes cars were floating away and main roads were completely blocked.

Prompt action by the emergency services saved lives, with seven helicopters being used to rescue 100 people from roofs. By 6pm the waters began to recede, and by 8pm rivers were within their banks. The Environment Agency described the events in Boscastle as 'some of the worst floods ever seen in Britain', although in truth 'most thoroughly recorded' might be more accurate an account. The floods affected 100 homes and businesses, destroying four. They swept away 115 vehicles while damaging roads, bridges, sewers and other infrastructure. There were no fatalities. ¹

Even a year later, controversy surrounds the rebuilding of houses that has taken place at Boscastle.

In Europe, rivers are the big problem

Localised as they were, the Boscastle floods dramatically demonstrate the dangers, to housing, of flood water. But it is the flooding of larger rivers – as at Carlisle in January 2005 where three people were killed and 3,000 homes affected – that presents the most substantial danger. It is the floods of the Danube and Elbe in August 2002 that have prompted the European Commission to develop more comprehensive flood management.

According to the European Environment Agency, between 1995 and 2002 Europe suffered about 100 major floods, causing 700 fatalities, displacing about half a million people and resulting in at least €25 billion of insured losses. The exceptional floods of the Danube and Elbe alone resulted in 112 deaths. Economic losses were estimated at €14.4 billion, of which only €3.4 billion were insured.

Homeowners can hardly draw comfort from it, but the truth is that flood losses are financially greater among small firms than among houses. SMEs – including, let's not forget, the high proportion of SMEs in construction – suffer from interruption of business, and are generally not protected from water in the way that large firms are. ²continued on Page 2

¹ Environment Agency, *Living with the risk: The floods in Boscastle and North Cornwall 16 August 2004*. See www.environment-agency.gov.uk/commondata/acrobat/living_with_the_risk_1111062.pdf

² Environment Agency, *Mapping the impacts of recent natural disasters and technological accidents in Europe*, Environmental issue report No 35, 2003. See http://reports.eea.eu.int/environmental_issue_report_2004_35/en/accidents_032004.pdf



Floods and Housing

Regulators move in

Policy is moving towards restricting development if it is planned for flood plains. Since 2000, the Environment Agency had an obligation to report to DEFRA and ODPM on development and flood risk under High Level Target 12. According to the Agency's report, the development schemes of nearly all Local Planning Authorities (LPAs) now include statements and policies on flood risk, and are being actively updated to reflect present concerns. In 2003/4, the Agency has made objections, based on flood risk, to 214 major development proposals – and no fewer than 119 of these proposals were for housing.

Significantly, LPAs gave planning permission contrary to Agency advice to 21 of these major developments, representing 6.5 per cent of developments in all. That represented a fall from 11 per cent on the figures for 2002/03. Similarly, the proportion of contrarian developments that were residential also fell – from 62 per cent in 2002/03 to 48 per cent in 2003/4.³

Number of applications for significant kinds of development, by type and size, against which the Environment Agency made an objection on grounds of flood risk; percentage of all the Agency's objections⁴

Type of development	Major ⁵	Minor ⁶	All	Percentage 2003/04	Percentage 2002/03
Residential	119	905	1024	71.3	68.3
Offices / Light Industrial	14	66	80	5.6	7.1
Mixed	22	45	67	4.7	1.7

LPA policy will also be influenced through participation in Resilience Forums under the Civil Contingencies Act 2004. The government has not yet produced a response to its consultation on PPG25, but the response to consultation on its *Making Space for Water* strategy⁷ suggests that this pressure to restrict construction is likely to increase.

European regulation will also increase. The European Commission is presently planning a floods directive. Following the Elbe and Danube floods, the Commission issued a communication, *Flood risk management: prevention, protection, mitigation*, on 12 July 2004. It is likely that a directive covering prevention, protection, preparedness, emergency response and recovery will follow in 2006, building on the existing Framework Directive on water.⁸

Getting risks in perspective

Risks to houses *are* bigger when they are built on flood plains. Between houses under water and insurance giants that take forever to pay, homeowners are only being human when they are angry; and it is their anger and distress that, understandably, tend to dominate the news. However, floods need to be kept in perspective.

In today's culture, emotions, fear of political disaster and aversion to risk all exercise a strong influence on policymaking. As a result, the anger and distress felt by those flooded out quickly translates into knee-jerk reactions on the part of officialdom. Yet obvious solutions to floods – in particular, to enforce bans on housebuilding on floodplains – are highly questionable. In certain circumstances a prohibition may make sense. But we should not overlook the potential of planning and engineering to handle flood risk safely. That way, we can make best use of available land, while minimising losses associated with floods.

Underlying much present concern is fear of climate change. It is likely that, alongside increased floodplain development, climate change will put greater demand on flood defences. But this does not mean the only alternative is to cut back on construction. The Foresight report *Future Flooding*, sponsored by the Office of Science and Technology, examined a variety of future scenarios.continued on Page 3

³ See Environment Agency and Local Government Association, *High Level Target 12: Development & Flood Risk 2003/04*, November 2004, p3. See www.environment-agency.gov.uk/subjects/flood/571633/952531/?version=1&lang=_e

⁴ Ibid., Table 4, p13.

⁵ A major development is one in which the number of dwellings to be constructed is 10 or more, or the site area is equal to or greater than 0.5 Ha. Non-residential developments are defined as major if they involve a floor space equal to or greater than 1000m², or a site area equal to or greater than 1 Ha.

⁶ Minor residential development covers those in which either the number of dwellings is less than 10, or the site area is less than 0.5 Ha.

⁷ On www.defra.gov.uk/enviro/fcd/policy/strategy/1stres.pdf

⁸ http://europa.eu.int/comm/environment/water/flood_risk/



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It found that, when set against low-growth, Green scenarios, the extra resources generated by high economic growth could, if invested in flood defence and management, more than offset the extra risk involved in building on flood plains.⁹ Anyway, improved water quality has made riverside locations become more attractive for residential development and leisure. These uses create a further need for creative flood defences that are fun to look at and do not block access to the waterside.

For these reasons there will be a greater need for investment in water management. There is no shortage of technological and engineering solutions. Many of these will be about upgrading of existing infrastructure, such as separation of storm- and waste-water drainage.

An inspirational model comes from the Netherlands. The present system of Dutch flood defences, the Delta works, was planned and constructed in the decades after floods in 1953 killed twice as many people as Katrina has in the US. The works raised large lengths of the coastline by 5m, and constructed 13 large dams.

Another example of what can be done comes from Venice's Project Moses, which plans to insert 79 underwater gates at the entrance to city in the Adriatic.

Gateway problems

The Association of British Insurers (ABI) has called for a more flexible approach to development of greenfield land in order to avoid flood risk.¹⁰ In apprehensive style, it favours the avoidance of floodplains – but at least it argues that not every development that avoids them must be built on brownfield sites.

The ABI estimates that if no steps are taken to manage flood risks, the Government's four main areas for housing growth in the South East – Thames Gateway, Ashford, the M11 corridor, and the South Midlands – could see the costs of river and coastal flooding rise by £20.9m in terms of damage to homes alone. The complete annual total of £54.6m, for homes and commercial properties, represents a 74 per cent increase in potential flood damages within the growth areas themselves, and an increase of five per cent in national flood risk.¹¹

Of the four development areas, it is the Thames Gateway that most raises the problem of building houses on floodplains. The total asset value of residential and commercial properties within the floodplain bits of the new growth areas is about £21.6bn, of which £19.1bn is attributable to new development within Thames Gateway. An extreme flood, the ABI adds, 'would lead to damages in excess of £12-16bn in Thames Gateway, with £4-5bn coming from these new developments'. Very recently, the London Assembly has used this ABI figure to raise the alarm about Thames Gateway, taking it as read that building bigger and more extensive flood defences for London is just 'too expensive'.¹²

Housing design solutions

Technical innovations can help minimise the dangers of flood plain construction. In certain circumstances the recommendation to raise the minimum floor height and avoid construction of basements will be appropriate. Lower floors might be used for storage or garages. There are, however, many other techniques that increase flood resilience. They include:

- solid concrete floors with effective connections between the under-floor damp-proof membrane and the damp-proof course in the walls
- the use of closed-cell insulation around pipes and in cavity walls
- raising the height of gas meters, electricity meters and fuse boxes.¹³

In other circumstances, it will make more sense to raise the land level, perhaps lowering surrounding gardens or parkland to provide storage of flood waters. There are also substantial opportunities for development of new technologies, such as low maintenance non-return valves to prevent the particularly nasty problem of flooding from sewer-backup. Another possibility is the development of floating houses – homes that could simply ride out floodwaters.continued on Page 4

9 On www.foresight.gov.uk/Previous_Projects/Flood_and_Coastal_Defence/Outputs.htm

10 ABI, *London Assembly scrutiny: development on derelict land*, August 2005. See www.abi.org.uk/Public/Consultation/Other/Consultation_Response_London_Assembly_Brownfield_Land_Aug_05_180805113800.pdf

See also ABI, *Planning for housing provision: consultation response from Association of British Insurers*, September 2005. See www.abi.org.uk/Public/Consultation/Other/2005_090905111136.pdf

11 ABI, *Making communities sustainable: managing flood risks in the Government's Growth Areas*, Summary Report, p7. See www.abi.org.uk/display/File/Child/554/Making_Communities_Sustainable_housingsummary.pdf

12 London Assembly Environment Committee, *London under threat? Flooding risk in the Thames Gateway*, 10 October 2005, and on www.london.gov.uk/assembly/reports/environment.jsp#flood_tg

13 ODPM, *Preparing for floods: interim guidance for improving the flood resistance of domestic and small business properties*, October 2003. See www.odpm.gov.uk/stellent/groups/odpm_buildreg/documents/page/odpm_breg_600451.pdf



Floods and Housing

The future

In the future, a more sophisticated management of floodwaters will rely more on hydrological computer modelling, which improves understanding of water flows and already makes use of improved data sets, such as those available from satellite imaging. Modelling should also improve wastewater flows. Present models indicate where water may exit a drainage system, but not how it will flow overland.¹⁴

By estimating likely rainfall from radar techniques and so 'nowcasting' flash-flood risks, new models will also aid real-time flood management. In emergencies, such systems should mean:

- more effective use of temporary and demountable defences
- more effective decisions about diversion of water
- smoother evacuations
- faster emergency housing repairs.¹⁵

However, systems of water management across a whole catchment basin, including sluice gates, weirs and ground water pumping, could do much to reduce the incidence of flash floods in the first place. These systems merely need better coordination, as well as greater automation of control.

¹⁴ Gwion Kennard, 'Channel solutions', *Atkins innovation*, No 26, Spring 2005, p4, and on www.wsatkins.ie/wsainternet/aboutus/publications/innovation/5098236_innovation_iss ue_26_.pdf

¹⁵ H. Sharif, D. Yates, R. Roberts and E. Brandes, 'Flash flood nowcasting in an urban watershed', *Geophysical Research Abstracts*, Vol. 5, 04454, 2003.

Wave Homes on a rising tide



.....Full article on Page 6

Concrete on tour



By Anna Scothern,
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Concrete has many advantages to offer as a modern construction material, such as high thermal mass, ease of use, durability, acoustic integrity, and fire resistance. In relation to flooding, both from floodplain activity and FROM – often more aggressive – flash flooding, concrete is particularly robust. But don't simply take our word for it: come on the next European Tour hosted by The Concrete Centre in November 2005 and see for yourself.

The aim of the tour, which will engage more than a dozen participants, is to get to the truth about the practical use of concrete in modern construction. Participants will have a unique opportunity to view how factories making concrete products provide high-quality housing. The factories are able to make products that cope with high summer temperatures, on what are very often low budgets.

The visit will show how the products are assembled, and visitors will be able to discuss the merits of each system on a direct and informal basis with its manufacturer and experienced staff from The Concrete Centre. Following the tour, participants will have the opportunity to network with other industry professionals, and The Concrete Centre staff will be on hand to answer any questions relating to cement and concrete in the UK.

Cost: about £1000, of which half will be subsidised by The Concrete Centre.

Provisional programme

Sunday 13 November, afternoon:

Participants assemble at Eurostar station, Waterloo, for travel to Brussels.

Monday 14, morning:

Travel by bus to Hurks Beton bv, Veidhoven, the Netherlands – specialists in top-quality architectural pre-cast concrete, including polished and ultra-strong varieties

Monday afternoon:

Travel to factory of Holcim, Oudenbosch – a smaller facility specialising in lightweight housing elements using Lava aggregates.

Tuesday 15, morning:

Travel to factory of Heembeton, Lelystat – an automated plant, complete with carousels, producing wall and facade units

Tuesday afternoon:

Travel to factory of Alvon, Veenoord – a large unit making housing components plus Twin-Wall for basements and other applications

Wednesday 16, morning

Visit Newton/Burggraaff Bouw, Leeuwarden – a purpose-built factory producing fully prefabricated housing that is almost bespoke. External walls are assembled with a brick-placing robot. The party will also view show houses

Wednesday afternoon:

Travel to Tunnel-Form project at Beverwijk/Heemskerk. This is a 200-unit development that runs to three and four stories. The superstructure is Tunnel-Form cast on site. It will be possible to see the full sequence of construction

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