

THE IMPLICATIONS OF THE UK'S COUNTER-TERRORISM STRATEGY ON THE CONSTRUCTION SECTOR

Steven Harre-Young, Lee Boshier, Andrew Dainty and Jacqueline Glass

Department of Civil and Building Engineering, Loughborough University, LE11 3TU, UK

Due to the threat of terrorism that exists within the UK and internationally, since 2003 the UK has had a strategy for countering international terrorism known as CONTEST, which has been publicly available since 2006 and was updated in March 2009. As part of an ongoing project looking into the systemic implications of counter-terrorism (CT) measures, a review of literature draws attention to major consequences that await the construction sector as a result of UK policy. This reveals that open spaces, unprotected buildings and crowded places are particularly vulnerable so their design and protection through the incorporation of CT measures needs attention. The UK's National Counter Terrorism Security Office is encouraging those responsible for ensuring the protection and resilience of vulnerable buildings and crowded areas to incorporate the use of CT measures. However, it is apparent that there is a lack of investment and 'buy in' from some key stakeholders with responsibility for the development of the built environment. This is due largely to client scepticism about the use of obtrusive and highly visible (and often unattractive) solutions, a lack of informed guidance, differing opinions on the severity of the perceived threat from terrorism and poor awareness of the cost-benefits of such measures. Conclusions drawn state that there are major ramifications for the construction sector if research on the systemic implications of CT measures and their use, cost-effectiveness and ability to enhance resilience through others means, such as sustainability, are not conducted. Moreover, it is likely that the political and social influences and actions resulting from terrorism are beginning to induce fundamental change with regard to the planning, design, management, security and sustainability of the built environment.

Keywords: building design, built environment, counter-terrorism, sustainability, UK.

INTRODUCTION

The UK has had a strategy for countering international terrorism (CONTEST) since 2003 and it is organised around four work streams, those being 'Pursue', 'Prevent', 'Protect' and 'Prepare', which were most recently updated in March 2009 (HM Government 2009a). The implications of one of the four strands of this strategy (Protect) could have major implications for the construction sector that need to be realised, understood and accommodated where appropriate. Accordingly, the threat of terrorism and the resulting issue of counter-terrorism (CT) is focussed on by this research by examining the implications of CONTEST as a whole and the specific implications for the construction sector. As a result of this review, the major ramifications for those who plan, design and manage the built environment are explored. This review forms part of a three-year study, which is evaluating the systemic implications that are associated with the use of CT measures for protecting key components of the built environment. The aim is to examine the impacts,

Harre-Young, S., Boshier, L., Dainty, A.R.J. and Glass, J. (2009) The implications of the UK's counter-terrorism strategy on the construction sector. *In: Dainty, A. (Ed) Procs 25th Annual ARCOM Conference, 7-9 September 2009, Nottingham, UK, Association of Researchers in Construction Management, 1285-94.*

consequences and tradeoffs of designing in and retro-fitting CT measures and the cost / benefits of CT measures in relation to their effectiveness. This is being done in collaboration with the National Counter Terrorism Security Office (NaCTSO), in order to produce guidance that has evaluated all the issues involved with the use of CT measures and inform future legislation, guidelines and codes of practice.

DEFINING TERRORISM

For this research, a threat will be regarded as any action that is carried out with intent and malice and causes or threatens to cause damage to society and the environment that it operates within. Under such a definition, terrorism is therefore defined as a threat. However, Hoffman (2004) states that the process of defining terrorism itself is a major political issue and that its complexity is centred on the context in which the acts of violence were carried out and were seen. The Terrorism Act 2000 (UK Parliament 2000: 1) defines terrorism as:

- (1) In this Act "terrorism" means the use or threat of action where -
 - (a) the action falls within subsection (2),
 - (b) the use or threat is designed to influence the government or to intimidate the public or a section of the public, and
 - (c) the use or threat is made for the purpose of advancing a political, religious or ideological cause.
- (2) Action falls within this subsection if it -
 - (a) involves serious violence against a person,
 - (b) involves serious damage to property,
 - (c) endangers a person's life, other than that of the person committing the action,
 - (d) creates a serious risk to the health or safety of the public or a section of the public, or
 - (e) is designed seriously to interfere with or seriously to disrupt an electronic system

Responding to the threat of terrorism could present significant challenges for the construction industry. It is widely documented that the built environment is at risk from and vulnerable to a wide range of natural hazards, threats and industrial accidents (Boshier 2008: 4) and that due to the extent to which they occur and as a result of their evolving nature, the built environment will never be fully resistant to their impacts (Dainty and Boshier 2008: 357). Whilst much can be done to reduce the impacts that have been and will be felt by such phenomena, strategies must be sensitively developed in order that their systemic interconnections are understood and mitigated for. It is here where the core intellectual challenge lies in relation to integrating CT measures within built environment practice.

TERRORISM AND THE UK

There have been a range of specific terrorist plots in the UK, which have targeted a plethora of different infrastructures and public spaces. Successful attacks included the Provisional IRA bombings that occurred during the 1990s, the most prominent of which was the Manchester city centre bombing in 1996. Also, terrorists detonated

four devices on the London transport network on the 7th July 2005 and a further unsuccessful attack two weeks later on the same network. Other attempted plots to attack the UK have received widespread media coverage and have included attacks on nightclubs, pubs and shopping centres (Campbell and Laville 2007), airports (Townsend *et al.* 2007) and aircraft during flight (Laville *et al.* 2006). These plots show a methodology that terrorists use, exploiting unprotected, non-military, 'soft' targets, where large numbers of people congregate and that may be particularly crowded at specific times (Coaffee *et al.* 2008).

According to the UK's Security Service (MI5), the threat that is faced by terrorism can be categorised into three areas, those being threats from domestic extremism, international terrorism and Northern Ireland (Security Service 2009). Although the threat of terrorism comes from different groups, the use of explosives to achieve a political aim is a common theme, with numerous recent attacks highlighting the risk that is faced and the vulnerability of the built environment to such attacks.

CONTEST

The strategy for countering international terrorism was created in 2003 as a result of the terrorist situation within the UK and internationally, was publicly available in 2006 and updated in 2009 and is structured around four strands (HM Government 2009):

Pursue

The security and intelligence services and Police work closely together in order to fulfil this strand, which focuses on the detection, investigation and disruption of terrorist networks and activities through intelligence gathering and various forms of prosecution and restriction (HM Government 2009a).

Prevent

The aim of this strand is to prevent people becoming terrorists, by challenging extreme ideologies, disrupting promotion of such behaviour, supporting vulnerable individuals, increasing community resilience and addressing grievances that the ideologies are exploiting (HM Government 2009b).

Protect

Comprehensive plans are continually being developed in order to protect critical national infrastructure, crowded places and border security, therefore reducing the vulnerability of the UK to terrorist attack and protecting it from potential impacts (HM Government 2009b).

Prepare

'Prepare' aims to mitigate the impact of an attack where it cannot be stopped, manage an ongoing attack and recover from its aftermath, by ensuring that capabilities exist in order to respond and recover effectively and that responders are well trained and equipped to do so (HM Government 2009a).

Under work that is being carried out for 'Protect', security advice and programmes have been run in order to provide "proportionate, sustainable and effective security" (HM Government 2009b: 11). This has already had implications for a few construction projects such as shopping centres and football stadia, but CONTEST is non-statutory, meaning that there is no legal requirement for buildings and public spaces to embed CT measures into their design. Despite this, the potential

implications of the strategy could be profound, covering areas that include project specification, building design, urban planning and facilities management. Embedding the principles of CONTEST therefore has potentially significant implications for all those involved with the development of the built environment.

COUNTER-TERRORISM MEASURES

CT measures can be defined as “those physical, technological and operational measures intended to devalue, deter, deny and defend against acts of terrorism” (Grosskopf 2006: 1). Although there have been calls by architects and engineers for the terrorist threat to be tackled without the use of such measures (Lazell 2008), CT measures are being increasingly integrated into the design, construction and operation of the built environment. Swanstrom (2002: 135) suggests that the main threat is not from terrorism itself, but the policy responses to it.

Coaffee *et al.* (2008) state that this approach has changed from ‘designing out’ the effects of terrorism, which focussed on stopping vehicle bombs, to ‘designing in’ CT measures into physical and managerial infrastructure. This follows the same practices of designing and creating environments that have been used to mitigate impacts of crime in residential and transport infrastructure environments. This concept of modifying buildings and space is known as Crime Prevention Through Environmental Design (CPTED), which Crowe (2000: 46) defines as a process that asserts that “the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime, and an improvement in the quality of life”. Cozens *et al.* (2005) showed that CPTED has six characteristics, those being territoriality, surveillance (informal and formal), access control, image / maintenance, activity programme support and target hardening. Although Coaffee *et al.* (2008) show that there are limitations to using approaches that were created for non-terrorism issues, as the psychological relationship between a criminal and a terrorist may differ and terrorist threats are not easily quantified, it can be argued that CT measures could potentially be based around this concept. Although the measures themselves are most commonly associated with target hardening, surveillance and access control, CT measures and practices fall within each of the categories that exist within CPTED.

Effective measures

Regan (2006: 24) suggests that effective CT measures can include setting buildings back from the street; limiting the number of entrances and exits; eliminating first-floor windows; eliminating underground parking or parking on adjacent streets; and barrier protection around the perimeter of the site.

Physical CT approaches are not the only measures available to mitigate the impact of an attack, as various non-structural approaches can be used, such as rigorous recruitment, selection and monitoring processes; security patrols; promotion of ownership of space and senses of community, respect and territoriality; and good housekeeping practices. The removal or reinforcement of areas where explosive devices could be stored, such as bins (Dolnik 2007; Coaffee and Boshier 2008) and the reinforcement of windows and glass (Little 2004) are also effective measures that are used frequently, although the most effective measure to mitigate the impact of a terrorist attack is 'stand off', which is the distance between a device and its intended target (Little 2004; Regan 2006; Coaffee and Boshier 2008).

Factors influencing implementation

Although these measures appear straight forward, there are numerous and wide-ranging issues inherent in implementing CT measures. These can be categorised into three groups, those being:

- The need for their use, such as the history and locations of the attacks themselves. An example of this is transport networks, which have been frequently targeted and have included infrastructure in Madrid and London
- Implications of their use, such as aesthetics, as if certain CT measures are deemed as too obtrusive, despite their potential effectiveness, they may not be incorporated into public buildings and spaces
- Politics driving their use, such as CONTEST, part of which promotes and requires the use of CT measures to be incorporated into aspects of the built environment

The threat faced from terrorism is said to be sustained (Security Service 2009) and the CONTEST strategy reflects this continuing need for CT measures to be incorporated through the 'Protect' strand of the strategy (HM Government 2009a). Therefore, the implications of the use of such measures need attention. In terms of costs and benefits of effective CT measures, Little (2004: 55) describes a scenario in which effective and prominent CT measures have been identified, are to be enforced and / or are commonly used. He shows that the use of measures such as standoff, limiting vehicle access and assigning security patrols could lead to the need to purchase additional land (if available) and even relocating to another site completely. The implications of such a drastic approach are obviously far-reaching and costly, but Little (2004: 55) highlights further that "there is, as of yet, a paucity of data to support a convincing calculation of costs and benefits". Studies on the cost effectiveness and return ratios of investments have been carried out, but not in relation to counter-terrorism, although the findings from studies on mitigating crime and natural hazards offer an insight as to what might be expected. For example, Armitage (2000) showed that in regard to mitigating crime in residential properties, designing in and retrofitting measures cost 26% and 36% respectively of the average cost of a burglary in the UK. In regard to the study of natural hazards, research into the USA's Federal Emergency Management Agency (FEMA) grants by the Multihazard Mitigation Council (2005) showed that for every dollar that was spent on mitigation, society saved \$4 in the event of a disaster or a hazard causing damage.

CONTEST AND THE CONSTRUCTION SECTOR

CONTEST has major implications for the construction sector, however it is only one strand, 'Protect', that, if made mandatory, would have substantial consequences, with 'Prepare' having some implications. 'Protect' is concerned with reducing the vulnerability of the UK to a terrorist attack (HM Government 2009a) and is the only strand that encompasses the modification of the built environment in any way. Potential ramifications result from the 'Prepare' strand as this involves continually evaluating preparedness and capabilities, which could involve changes to the way certain buildings or spaces are designed and function.

It is clear that those who are involved in the design, construction and operation process would need to change how they perceive, plan for and incorporate such measures if they are to protect the built environment from the impacts of terrorism. This is highlighted by research that was conducted by the National Counter Terrorism Security Office (2007 cited in Coaffee and Bosher 2008: 77), who showed that only

8% of planners and 24% of architects embrace CT in their decision making. This lack of investment and 'buy in' is due to many reasons that include client scepticism, cost and potential aesthetic consideration. It also appears to be due to a lack of informed guidance and research on the best practices in designing new buildings and spaces and retro-fitting existing ones. As shown previously, CT measures encompass a range of physical, technological and operational approaches (Grosskopf 2006) that aim to restrict movement so that only 'allowed' behaviour is carried out and that any unauthorised or unwanted behaviour can be identified and dealt with as quickly and effectively as possible. Depending on the extent to which CT measures are incorporated into public buildings and spaces, their use has major ramifications for the way in which they are designed, built, operated and maintained. A plethora of functions, such as access, egress, parking, screening, ventilation, secure versus unsecure areas, surveillance, blast protection and the architectural design of the building itself, would need to be considered. However, existing research offers little insight into the systemic implications of using such measures to protect buildings and spaces, which is of concern considering two recent developments that have been made by the government. Firstly, Coaffee and Bosher (2008: 79) highlight that a recent document issued for consultation on national indicators for local authorities includes 'Indicator 36', which covers the protection of crowded places from terrorist attack. Secondly, the CT supplement to the 'Safer Places' document (Home Office 2009) details that it can be used as "a material consideration in the determination of planning applications", thus highlighting that new constructions may have to 'conform' to a plethora of CT measures and practices.

THE WAY FORWARD

There is a need for detailed research into the cost effectiveness of mitigation measures. First, government statements and academic research both state the threat of terrorism will remain for years to come, so there is a serious and sustained need for CT measures to be incorporated into the design, construction and operation of the built environment. Williams *et al.* (2000) highlighted the implications for those that do not take such action by showing that within two months of the Manchester city centre bombing in 1996, the loss of turnover from local businesses was estimated at £50 million and the subsequent rebuilding programme cost over £500 million. However, the extent to which CT measures can be used, their effectiveness, cost and implications all need to be understood by the construction sector and wider stakeholders in order to ensure future guidance and legislation is well informed, balanced and proportionate.

In a wider context focussing on the Civil Contingencies Act 2004 and resilience, Fox (2008: 297) argued that the Act itself and the resilience agenda should be a magnet for engineers and those who hold that sustainability and safety are not only a professional duty, but fundamentally a moral one too. Thus, engaging with the issues that such legislation presents can move professionals closer to fulfilling that duty. This principle applies to the construction sector as a whole and the CONTEST strategy. In order to engage fully with CONTEST, the systemic implications of CT measures need to be understood and their cost effectiveness in relation to mitigating the threat (and others) should be analysed.

Sustainability

Key amongst the knock-on implications of CT measures is the impact for sustainability. Fox (2008) highlighted that sustainability was also a fundamental issue

to take on and the synergies (and trade-offs) involved with merging CT measures and practices with sustainable ones is being increasingly researched and promoted. Coaffee and Boshier (2008) argue that the integration of CT measures with sustainability is one way to support the appropriate utilisation of security measures. Zimmerman (2008) argues that sustainability and security are not only compatible, but that they are integral components of each other and that meeting the goals of both is possible as long as they are designed and integrated from the outset. This shows a need for integrating disaster risk management by all relevant and involved stakeholders at the earliest opportunity (Boshier *et al.* 2007).

Perelman (2008) argues that if sustainability is classed as a 'green' movement and security classed as a 'blue' movement, the ultimate objective would be to create a new infrastructure doctrine that can integrate the positive features of the green and blue architectural agendas while pragmatically resolving the necessary tradeoffs between the two – hence getting to something like a "turquoise design theory" and that the approach should lead to a resilience that endures a wide range of stresses and shocks. Coaffee (2008) further developed this concept by highlighting that resilience can only be achieved by merging the two agendas of security and sustainability, along with their isolated policies (see Figure 1). The result of this would be an integrated and holistic approach to resilience, which encompasses security and sustainability equally and as concepts that are individual but that also have common goals and outputs.

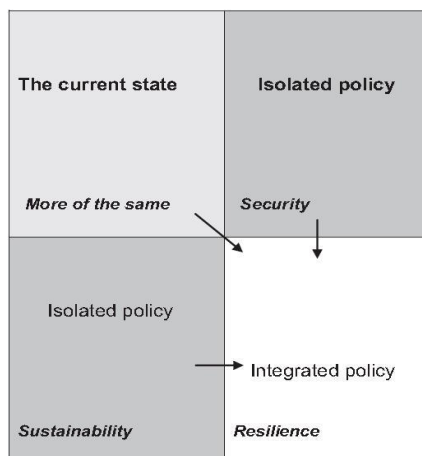


Figure 1: Alternative scenarios for balancing security and sustainability (Coaffee 2008: 636)

Future Research Directions

There is substantial scope for CT measures to mitigate other hazards and threats and positively contribute to environmental agendas, such as sustainability. However, further research is needed on how such measures can provide multi-functional roles, whether such a capability does or can exist and the cost-effectiveness of such approaches, should they be utilised. Accordingly, this research will examine current research on protecting key components of the built environment and the development of the terrorist threat. The objectives are to:

- Identify the impacts, intended and unintended consequences of designing in and retro-fitting CT measures into structures and the trade-offs that are involved in this

- To analyse the extent to which the use of CT measures can contribute towards increased sustainability by enhancing resilience to other threats such as crime and extreme weather events linked to climate change
- To carry out a cost/benefit analysis of CT measures in relation to their effectiveness in mitigating the threat
- To produce guidance on the issues involved in CT measures and their current and potential use in order to inform and contribute to future legislation, guidelines and codes of practice

CONCLUSIONS

Whilst the CONTEST strategy is currently not a statutory instrument, the implications of not acting prior to its enforcement (or that of any other legislation as highlighted by the potential implications of the CT supplement to the 'Safer Places' document) are potentially profound. Guidance and legislation need to be informed, with the systemic implications of CT measures understood properly and their cost and effectiveness researched and analysed, so that any future changes in statutory duties do not result in rushed and obtrusive reactions. There is widespread criticism, scepticism and a lack of awareness regarding the use of CT measures, their effectiveness, tradeoffs, cost and aesthetic implications, all of which need attention. In addition, there is also a question of what opportunities might arise from CONTEST, as the construction sector and wider academic arenas now have the opportunity to further the strategy and pre-empt any future publications by obtaining an understanding of the use of CT measures so that any forthcoming publications and initiatives are informed, understood and based on proportionate and effective practices. This must be carried out to achieve proactive and sustained engagement based on fact, rather than reactive and enforced measures based on perceptions and fears.

ACKNOWLEDGEMENTS

The research for this paper and the three year project of which it forms a part is supported by an Engineering and Physical Sciences Research Council grant, awarded through the Innovative Manufacturing and Construction Research Centre at Loughborough University. Further thanks go to the National Counter Terrorism Security Office for being a partner to this ongoing research.

REFERENCES

- Armitage, R (2000) *An evaluation of secured by design housing within West Yorkshire*. Policing and Reducing Crime Unit Briefing Note 7/00. London: Home Office.
- Boshier, L (2008) *Introduction: the need for built-in resilience*. In *Hazards and the Built Environment: Attaining Built-in Resilience*. Ed. Boshier, L. London: Taylor & Francis.
- Boshier, L, Dainty, A R J, Carrillo, P, Glass, J and Price, A (2007) Integrating disaster risk management into construction: a UK perspective. *Building Research and Information* **35**(2), 163-177.
- Campbell, D and Laville, S (2007) *A wisp of smoke - and lethal device was spotted* [online] available from <<http://www.guardian.co.uk/uk/2007/jun/30/terrorism.world>> [03 April 2009].
- Coaffee, J (2008) Risk, resilience, and environmentally sustainable cities. *Energy Policy*, **36**, 4633-4638.

- Coaffee, J and Boshier, L (2008) Integrating counter-terrorist resilience into sustainability. *Proceedings of the Institution of Civil Engineers: Urban Design and Planning*, **1**(2), 75-83.
- Coaffee, J, Moore, C, Fletcher, D and Boshier, L (2008) Resilient design for community safety and terror-resistant cities. *Proceedings of the Institution of Civil Engineers: Municipal Engineer*, **161**(2), 103-110.
- Cozens, P M, Saville, G, and Hillier, D (2005) Crime prevention through environmental design (CPTED): a review and modern bibliography. *Property Management*, **23**(5), 328-356.
- Crowe, T (2000) *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*. 2nd ed. Oxford: Butterworth-Heinemann.
- Dainty, A R J and Boshier, L (2008) Afterword: integrating resilience into construction practice. In: L Boshier (ed.) *Hazards and the Built Environment: Attaining Built-in Resilience*. London: Taylor & Francis.
- Dolnik, A (2007) Assessing the Terrorist Threat to Singapore's Land Transportation Infrastructure. *Journal of Homeland Security & Emergency Management*, **4**(2), 1-22.
- Fox, A (2008) The implications of the Civil Contingencies Act (CCA) 2004 for engineers in the UK. In L Boshier (ed.) *Hazards and the Built Environment: Attaining Built-in Resilience*. London: Taylor & Francis.
- Grosskopf, K R (2006) Evaluating the Societal Response to Antiterrorism Measures, *Journal of Homeland Security and Emergency Management*, **3**(2), 1-9.
- HM Government (2009a) *The United Kingdom's Strategy for Countering International Terrorism*. London: The Stationery Office
- HM Government (2009b) *Countering the terrorist threat: The UK Government's Strategy* [online] available from <<http://www.homeoffice.gov.uk/documents/contest-leaflet>> [24 March 2009]
- Hoffman, P (2004) Human Rights and Terrorism, *Human Rights Quarterly*, **26**(4), 932-955.
- Home Office (2009) *Safer Places: A Counter-Terrorism Supplement*. London: Home Office.
- Laville, S, Norton-Taylor, R, and Dodd, V (2006) *A plot to commit mass murder on an unimaginable scale* [online] available from <<http://www.guardian.co.uk/uk/2006/aug/11/politics.usa1>> [03 April 2009].
- Lazell, M (2008) *Counterterrorism competition blasted* [online] available from <<http://www.bdonline.co.uk/story.asp?storycode=3128148>> [24 March 2009].
- Little, R G (2004) Holistic Strategy for Urban Security, *Journal of Infrastructure Systems*, **10**(2), 52-59.
- Multihazard Mitigation Council (2005) *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities*. Washington: National Institute of Building Sciences.
- National Counter Terrorism Security Office (2007) *Crowded Places Business Questionnaire*. London: National Counter Terrorism Security Office. Cited in Coaffee, J and Boshier, L (2008) Integrating counter-terrorist resilience into sustainability, *Proceedings of the Institution of Civil Engineers: Urban Design and Planning*, **1**(2), 75-83.
- Perelman, L J (2008) Infrastructure Risk and Renewal: The Clash of Blue and Green – Symposium Introduction. Working Paper. *Infrastructure Risk and Renewal: The Clash of Blue and Green*, 14-18 January 2008, Public Entity Risk Institute.

- Regan, M (2006) Blast Proof City, *Planning in London: The Journal of the London Planning and Development Forum*, **58**, 22-24.
- Security Service (2009) *Terrorism* [online] available from <<http://www.mi5.gov.uk/output/terrorism.html>> [23 March 2009].
- Swanstrom, T (2002) Are fear and urbanism at war? *Urban Affairs Review*, **38**(1), 135-140.
- Townsend, M, Reville, J, and Kelbie, P (2007) *Terror threat 'critical' as Glasgow attacked* [online] available from <<http://www.guardian.co.uk/uk/2007/jul/01/terrorism.world2>> [03 April 2009].
- UK Parliament (2000) Great Britain Parliament. Terrorism Act 2000. Chapter 11. London: HMSO.
- Williams, G, Batho, S and Russell, L (2000) Responding to urban crisis: The emergency response to the bombing of Manchester City Centre, *Cities*, **17**(4), 293-304.
- Zimmerman, R (2008) New Paradigms to Simultaneously Achieve Environmental Sustainability and Security for Infrastructure. Working Paper. *Infrastructure Risk and Renewal: The Clash of Blue and Green*, 14-18 January 2008, Public Entity Risk Institute.