

Abstract

The use of crime prevention technology continues to expand within the urban environments of post-industrial cities (Loader, 1997; Crawford, 1998; Prenzler *et al.*, 2009). Target-hardening technologies such as alarms, shutters, bars, gates, walls and CCTV are increasingly being used to protect retail, industrial and residential properties (Loader 1999; Nelson, 1999; Prenzler *et al.*, 2009; Whattam, 2011).

The use of security shutters on windows in residential settings in Western Australia (WA) is a relatively recent development. This trend is increasing, despite a lack of evidence to support their effectiveness in reducing crime. This paper investigates crime and security shutters in a residential setting and reports on the perceptions of 353 respondents (residents in a Perth suburb). The survey explores perceptions of crime and 'eyes on the street' (Jacobs, 1961) and contrasts perceptions of crime associated with shuttered and non-shuttered properties. Respondents were shown photographs of properties as environmental stimuli to elicit insights into their perceptions of burglary risk, levels of surveillance of the street, levels of social interaction and levels of safety. Although shutters were perceived to reduce burglary in individual properties, this was believed to be at the cost of reduced surveillance, social interaction and personal safety at the street level.

Keywords: residential security shutters, situational crime prevention (SCP), 'eyes on the street', defensible space, crime prevention through environmental design (CPTED).

Introduction

The use of crime prevention technology continues to expand within the urban environments of post-industrial cities (Crawford, 1998; Loader, 1997; Prenzler *et al.*, 2009; Whattam, 2011). Target-hardening technologies such as alarms, shutters, bars, gates, walls and CCTV are increasingly being used to protect retail, industrial and residential properties (Loader, 1997; 1999; Nelson, 1996; 1999; Prenzler *et al.*, 2009; Whattam, 2011). Since the 1980s, situational crime prevention (SCP) has become “one of the most widespread approaches in the twenty-first century” (Whattam, 2011). In this paper, the authors adopt an environmental criminology perspective and utilise SCP theory to explore the use of security shutters in the residential setting as a deterrent to crime. If environmental criminology is “the study of crime, criminality, and victimisation as they relate first, to particular places, and secondly, to the way that individuals and organisations shape their activities by placed-based or spatial factors” (Bottoms and Wiles, 1997, p305), exploring the crime deterrent effect of security shutters is of interest. This is particularly so, given the lack evidence to support the use of security shutters as a crime preventing technology.

The turnover of private security companies in the UK increased by 330% between 1991 and 2005 and in the USA, security companies grew by 8-10% per annum (Krahmann, 2011). Security industry costs totalled \$2.9 billion in Australia in 2008 (Prenzler *et al.*, 2009). However, researchers are increasingly highlighting the idea that security companies inflate risks in order to sell their products and expertise, known as the commodification of security (Whattam, 2011).

Paradoxically, security measures can increase fear of crime (Halliwell, 2010) and encourage the take up of spatial and temporal avoidance strategies (Nelson, 1999). Indeed, Halliwell has argued (2011, p12), “there is concern that situational approaches, especially in their ‘*target hardening*’ categories, breed a ‘*fortress society*’ leading people increasingly to retreat behind locked doors, gates and shutters, in ‘*defensible spaces*’” (Bottoms, 1990; Weiss, 1987). Indeed, Barberet, and Fisher (2009) have posed the question ‘can security beget insecurity?’

This paper investigates the target hardening / access control mechanism of residential security shutters and perceptions of burglary risk, levels of surveillance, social interaction and personal safety. The authors also briefly discuss the notion of the risk society (Beck, 1992) and how private companies sell security by commodifying risk (Krahmann, 2011).

CPTED and Passive Surveillance – A Brief Overview

Following Moffat (1983), there are seven elements to Crime Prevention Through Environmental Design (CPTED) (see Figure 1) and has been discussed in detail elsewhere (Cozens *et al.*, 2001; 2005; Cozens, 2008). CPTED has been defined as “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” (Crowe, 2000, p. 46). This research is concerned largely with the elements of natural surveillance and target hardening / access control. Natural surveillance is the promotion of ‘eyes on the street’ (Jacobs, 1961) using spatial configuration and design (e.g. the orientation / placement of buildings / windows). It is theorized that if offenders perceive they can be observed (even if they are not), they may be less likely to offend. Natural access control focuses on reducing opportunities for crime using spatial definition to restrict access to potential targets and creating a heightened perception of risk in offenders. Target hardening is a micro-level form of access control directed at denying or limiting access to a crime target through the use of physical barriers such as fences, gates, locks, electronic alarms, security shutters and security patrols.

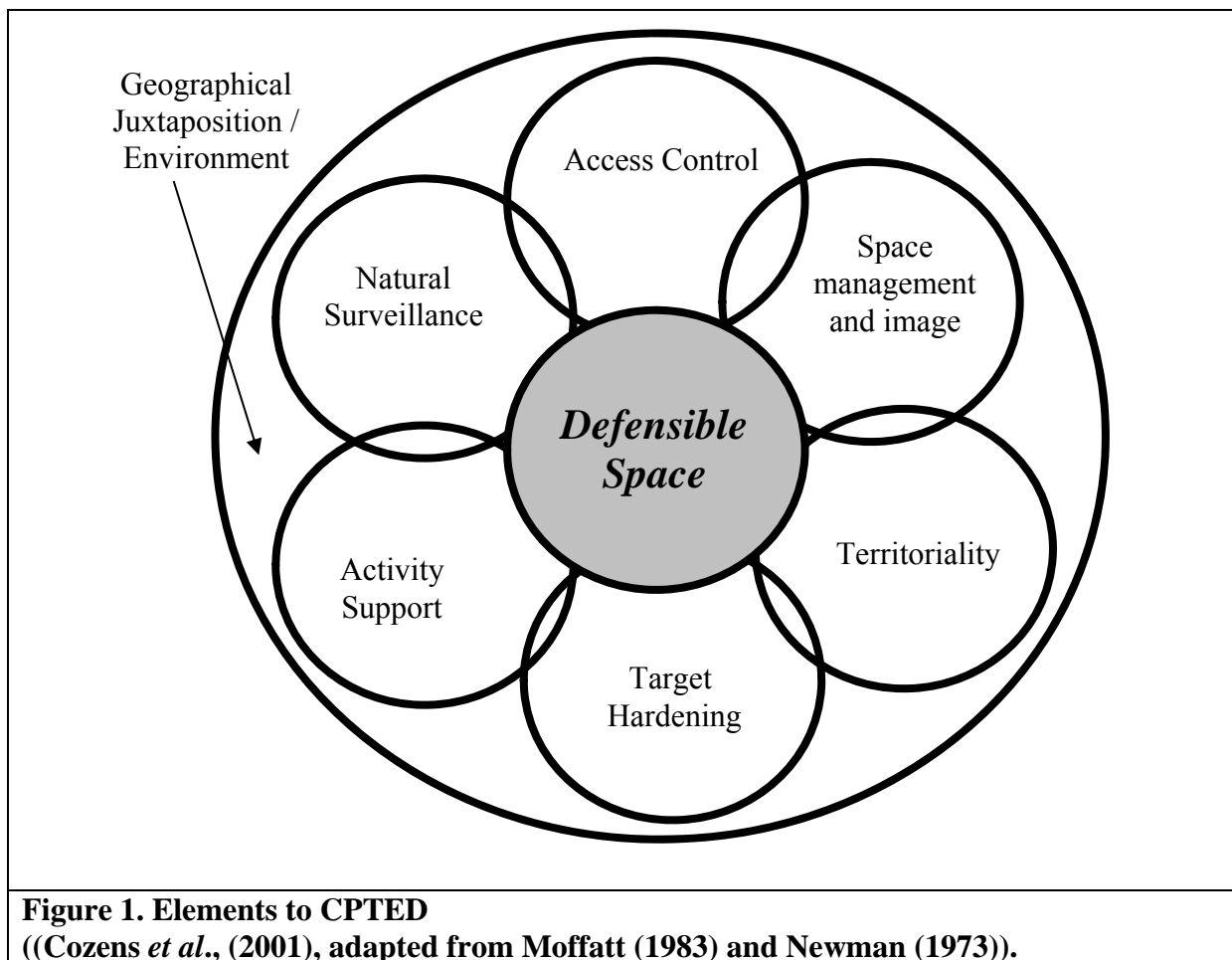
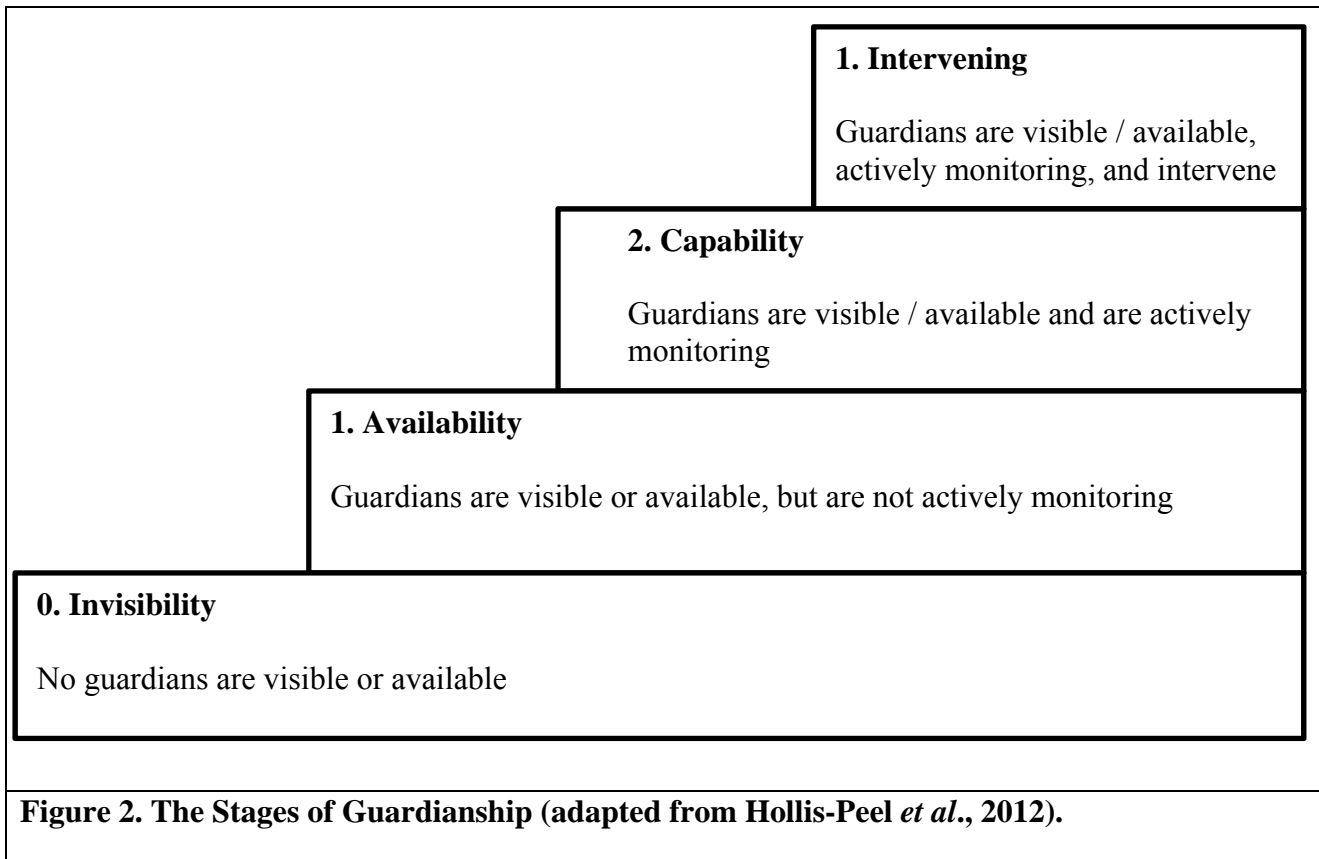


Figure 1. Elements to CPTED
(Cozens *et al.*, (2001), adapted from Moffatt (1983) and Newman (1973)).

In a review of studies relating to residential burglary, Sorenson (2003) observes how burglars avoid targets that are readily overlooked by neighbours and / or passers-by. Properties with low levels of lighting at night, high walls / fences, or thick trees or shrubbery can provide concealment opportunities for burglars particularly when close to points of access such as windows and doors (Weisel, 2002). Properties with strong intervisibility of good numbers of entrances ... are the safest spaces" (Hillier and Shu, 2000, p4). Newman's Defensible Space (1973) involved a "*range of mechanisms; real and symbolic barriers, strongly-defined areas of influence, and improved opportunities for surveillance; that combine to bring an environment under the control of its residents*" (Newman 1973, p3).

However, there have been criticisms (see Cozens et al., 2001; 2005 for a review) of these ideas and of the effectiveness of surveillance opportunities. Following publication of Newman's work, three important theoretical reviews of Defensible Space questioned many of his ideas, including surveillance opportunities (Mawby, 1977; Mayhew, 1979; Booth, 1981). Mawby (1977) highlighted how design can increase surveillance in one dimension and reduce it in another. Mayhew (1979) observed how properties affording surveillance might not be consistently occupied and residents may not act as capable guardians. Booth (1981) argued that opportunities to observe have been too narrowly defined.

More recently, Reynald and others (2009; 2010a; 2010b; Reynald and Efflers, 2009; Hollis-Peel *et al.*, 2012) have investigated how levels of guardianship are influenced by territoriality, surveillance and image. Based on observations and interviews, this research supports the premise that settings, which exhibit Defensible Space qualities, are associated with enhanced levels of guardianship by residents. Hollis-Peel *et al.*, (2012) discuss various stages of guardianship, which were observed during their fieldwork in the Netherlands. Figure 2 highlights the four categories of guardianship, which are useful to this discussion. Clearly, for properties with security shutters, there is limited / no visible evidence that the property is occupied. Inside, residents may be both available and capable of intervention – but they are unlikely to be monitoring / observing the street, since the shutters obscure their opportunities for surveillance.



It is useful to reflect on situational crime prevention (SCP) which aims to analyse the circumstances “giving rise to specific kinds of crime and introduces discrete managerial and environmental change to reduce the opportunity for those crimes to occur” (Clarke 1997, p.2). Security shutters are an opportunity-reducing technique used to deflect offenders, control access and conceal / harden targets since, in theory they increase the risk and effort associated with offending. The 25 SCP techniques are set out in Table 1 (below).

| Table 1. The 25 Situational Crime Prevention Techniques (Cornish and Clarke, 2003) | | | | |
|---|--------------------------------|---------------------------|-------------------------------|---------------------------|
| Increase the effort | Increase the risk | Reduce the rewards | Reduce provocations | Remove excuses |
| Target Harden | Extend guardianship | Conceal target | Reduce frustration and stress | Set rules |
| Control access to facilities | Assist natural surveillance | Remove targets | Avoid disputes | Post instructions |
| Screen exits | Reduce anonymity | Identify property | Reduce emotional arousal | Alert conscience |
| Deflect offenders | Utilise place managers | Disrupt markets | Neutralise peer pressure | Assist compliance |
| Control tools / weapons | Strengthen formal surveillance | Deny benefits | Discourage imitation | Control drugs and alcohol |

However, shutters are also implicated in reducing natural surveillance, reducing guardianship, highlighting potential (hidden) targets, which require protection and in weakening formal surveillance at the street level.

The relevance and effectiveness of natural surveillance, or 'eyes on the street' (Jacobs, 1961) has recently been questioned and there can exist situations where access control can undermine opportunities for natural surveillance (Cozens and Hillier, 2012). This can include the use of high / non-permeable (e.g. solid) walls (Da Costa, 2009). Simply, 'non-permeable' refers to solid walls, which completely restrict visibility - such that citizens cannot see through them. Conversely, a 'permeable' wall allows residents and others to see through it to varying degrees. Figure 3 and 4 illustrate properties with non-permeable and permeable walls. Clearly, these can affect levels of 'eyes on the street'. These opportunities are restricted by the non-permeable wall in Figure 3.



Figure 3. Non-permeable wall (authors)

Figure 4 illustrates a property with a permeable wall, which optimises 'eyes on the street'. The additional opportunities for surveillance of the street and the property are clearly visible in this example.



Figure 4. Permeable Wall (authors)

Figure 5 illustrates an example of the use of a permeable wall, as required by WA's Residential Design Codes, known as the R-Codes (Western Australian Planning Commission, 2008). The purpose of this State planning policy is to provide a comprehensive basis for the control of residential development and it is used in the assessment of development applications. The R-Codes have a provision to maintain the connection to the street through the use of windows overlooking the street (Clause 6.2.4). This is in keeping with the objective of promoting 'eyes on the street'. The structural nature of the shutters, usually do not require either planning or building approval, unless there are heritage or streetscape provisions in the local planning scheme/policy that would require it to be considered. The use of security shutters on the property's windows in Figure 5 clearly negates the advantage of potential surveillance opportunities provided by the overlooking windows, as required by the R-Codes. This study highlights this contradiction and investigates the conflict between surveillance and access control, with regard to residential security shutters.



Figure 5. Property with a Permeable Wall and Security Shutters (authors)

The Risk Society - Security Shutters and Limited Evidence

Shutters have been defined as “each of a pair of hinged panels fixed inside or outside a window that can be closed for security or privacy or to keep out the light” (Oxford Dictionaries, 2012).

Advertisements for security shutters commonly inform the community of high levels of burglaries through unprotected windows. The advertisements espouse the merits of security shutters in preventing such crimes and they are portrayed as a real deterrent to potential offenders.

However, in a growing market for security it has been suggested that some risks have been inflated by the private security industry such that “risks are no longer the dark side of opportunities, they are also market opportunities” (Beck, 1992, p 46). Krahmman (2011) has recently argued that Beck’s (1992) work on the world risk society neglected the big business of unknown risks and risk management. She argued, “firms can make a profit from managing the risks that they or others have created (Krahmann, 2011, p352).

Generally, recorded crime has fallen in most Western societies over the last decade or so, but citizens commonly report increased levels of fear of crime (Simmons and Dodd, 2003; Krahmman, 2011). It has been argued, “private security firms exacerbate risk perception in order to sell their

services” (Krahmann, 2011, p357). In the light of the crime-reducing claims of manufacturers / retailers of security shutters, this research investigates the evidence and probes residents’ perceptions of residential security shutters in reducing crime and in promoting community safety at the street level.

Significantly, evidence on the effectiveness of security shutters is very limited. Despite an extensive search, few studies on security shutters and crime could be located. A study by Nelson (1999) examined the impact of commercial security shutters, on perceptions of safety in the UK city centres of Cardiff, Gloucester and Worcester. Nelson’s study (1999) surveyed 1,564 city centre users after dark and the findings revealed that the presence of security shutters contributed to increased fear of crime. They also discouraged use (such as window-shopping or walking in streets with many shutters present) and reduced the level of lighting onto the street. Furthermore, security shutters were perceived to increase crime risks.

Nelson’s (1999) survey indicated shutters could affect behaviour and use of the streets after dark – when the shutters are closed. It was estimated that 33% of shops use them (Shopfront Security Group, 1994). This research, and visual observations of the increasing use of security shutters in the residential setting in Perth, prompted the need to develop some research to investigate the issue further. The authors asked how prevalent was the use of security shutters in the residential setting – and how are they perceived by other residents / users? Crucially, in contrast to commercial security shutters, residential shutters are closed during the day.

Jacques (1994) reported reductions in ram-raiding and burglary following the installation of security shutters across six retail super stores. Tilley (1993) also reported reductions in crime following the installation of shutters on retail premises. In the UK, planning permission is required where there is a material change in the external appearance of the building – and this extends to the installation of most types of shutters. Oc and Tiesdell (1999) have suggested shutters are part of the fortress approach in the pursuit of safer city centres, whereby individual retail properties become mini fortresses. They highlight social exclusion and threat of the fortress city. The extension of the use of security shutters into residential areas may have significant implications for the community and for the development of the fortress suburbs.

The Research

Based on preliminary research (Davies, 2012) and local observations within this suburb over several years, it appeared that the use of residential security shutters had increased significantly in recent

years. Furthermore, residential security shutters could be considered as a ‘double-edged sword’ (Nelson, 1999). Although they might reduce crime, they could also reduce levels of social interaction and ‘eyes on the streets’ (Davies, 2012). Following peer-review at a recent Design and Crime Conference (Cozens and Davies, 2012), dialogue with delegates indicated that this trend may be limited to WA. Attendees from other Australian states and from other countries expressed some surprise that security shutters were being installed on properties in residential areas.

This paper investigates crime and security shutters in a residential setting and reports on the perceptions of 353 respondents who were residents in a Perth suburb. Broadly speaking, the suburb is characteristic of those across WA and Australia, with marginally more separate houses, family households and occupied private dwellings (see Table 2).

| Category | Perth Suburb | | Western Australia | | Australia | |
|-------------------------------|--------------|------|-------------------|------|------------|------|
| | Number | % | Number | % | Number | % |
| Born in Australia | 11,803 | 62.3 | 1,407,806 | 62.9 | 15,017,847 | 69.8 |
| Worked full-time | 6,139 | 59.9 | 699,414 | 60.7 | 6,367,554 | 59.7 |
| Occupied private dwellings | 6,025 | 94.6 | 794,159 | 87.9 | 7,760,320 | 89.3 |
| Separate house | 5,752 | 95.5 | 638,768 | 80.4 | 5,864,574 | 75.6 |
| Family households | 4,995 | 82.9 | 573,706 | 72.2 | 5,550,614 | 71.5 |
| Rent - median weekly payments | 350 | - | 300 | - | 285 | - |
| Median weekly incomes | \$ 1,496 | - | \$1,415 | - | \$1,234 | - |

Table 3 compares selected crime rates for the Perth suburb with rates for WA. It indicates that the Perth suburb exhibits higher crime rates for assault, burglary and motor vehicle theft, but lower rates for graffiti and robbery. The higher rates for burglary may partly explain the elevated use of security shutters in this suburb. Alternatively, aggressive marketing campaigns by retailers of security shutters could also explain this trend.

| Table 3. Selected Crime Rates for the Perth Suburb and WA (WA Police) | | |
|--|---|--------------|
| Crime Type | Crime Rate per 100,000 population (2011) | |
| | Perth Suburb | WA |
| Assault | 621 | 552 |
| Burglary | 1,581 | 988 |
| Graffiti | 56 | 138 |
| Robbery | 66 | 77 |
| Steal Motor Vehicle | 308 | 222 |
| Total | 2,632 | 1,977 |

Of the 353 respondents from the Perth suburb, 283 (80%) did not have roller shutters, while almost 20% (70 respondents) did have security roller shutters installed on their property. Observations taken while conducting the fieldwork indicated that as much as one in five properties have now installed security shutters – and these are not necessarily, distributed randomly. For example, in some streets, there were several houses in a row with security shutters. There were also instances where properties with security shutters were adjacent to similarly shuttered properties in the same street.

This research explores perceptions of crime and ‘eyes on the street’ (Jacobs, 1961) and contrasts perceptions of crime associated with shuttered and non-shuttered properties. Respondents were shown photographs of properties as the environmental stimuli to elicit insights into their perceptions of burglary risk, levels of surveillance of the street, levels of social interaction and levels of safety. Figure 6 represents a property with security shutters and Figure 7 illustrates a property without security shutters.



Figure 6. Property with Shutters (authors)



Figure 7. Property without Shutters (authors)

Overall houses, 71% (n=250) of all respondents believed roller shutters reduced burglary. However, 55% (n=194) indicated that roller shutters had a negative impact on a property's visual appeal. Generally, most respondents indicated that shuttered properties provided significantly lower levels of surveillance of the street and were associated with lower levels of social interaction. Most respondents indicated that they also felt less safe walking past shuttered properties. Clearly, the perception of reduced burglary in shuttered properties is believed to come at a cost – to surveillance opportunities, levels of social interaction and to feelings of personal safety / security. When we compare the responses of those with security shutters with those without, there are some interesting differences. Table 4 (below) compares the responses to a range of questions.

| Statements | % agreement All respondents (353) | % agreement Shuttered respondents (70) | % agreement Non- shuttered respondents (283) |
|---|---|--|--|
| I have been burgled in the last 5 years | 31 | 33 | 30 |
| I know most / all of my neighbours | 37 | 30 | 39 |
| My neighbours act to reduce burglary | 54 | 57 | 47 |
| Shutters provide a negative visual change | 55 | 26 | 62 |
| Roller shutters should be subject to planning regulation to control their use | 21 | 10 | 23 |
| Shutters reduce burglary | 71 | 79 | 69 |

Interestingly, marginally more respondents living in shuttered properties reported being the victim of burglary in the past 5 years (33% v 30%), though fewer knew their neighbours (30% v 39%). More of the respondents living in shuttered properties reported that neighbours acted to reduce burglary (57 v 47%) and that roller shutters reduced burglary (79% v 69%). Finally, respondents living in shuttered properties viewed them as more positive in terms of visual amenity. Significantly, far more respondents in non-shuttered properties (62% v 26%) suggested shutters have a negative impact on visual amenity.

More detailed analysis of the data (see Table 5) indicates that more non-shuttered respondents than shuttered respondents felt that the shuttered property exhibited lower levels of surveillance, social interaction and personal safety.

| Statement | % agreement Shuttered respondents (70) | | % agreement Non-shuttered respondents (283) | |
|---|---|------------------------|--|------------------------|
| | Shuttered property | Non-Shuttered property | Shuttered property | Non-Shuttered property |
| This property has high / very high levels of surveillance of the street | 21 | 34 | 16 | 46 |
| This property has high / very high levels of social interaction with the street | 12 | 27 | 14 | 30 |
| I would feel unsafe / very unsafe walking past this property | 5 | 1.7 | 11 | 2 |

Several themes emerged from the qualitative responses. These generally mirrored the quantitative responses discussed above. Many of the respondents recognised the crime prevention benefits of security shutters. This included those living in properties with shutters and those residing in properties without security shutters). However, this was tempered by a perception that these benefits came at the cost of reduced levels of social interaction and surveillance / 'eyes on the street'. Another common perception was that the security shutters were associated with residents who would be less able / likely to notice problems in the street and potentially intervene.

A selection of comments made by respondents is briefly discussed. Most respondents recognised that security shutters did have a crime preventing effect. One respondent commented:

“The increased difficulty would be a deterrent, as would the increased time taken to commit a crime, [shutters] would increase the chance of getting caught” (Shuttered respondent 5).

Another contrasted his experiences in properties with and without security roller shutters:

“Well I previously had roller shutters and had no problems. But we have recently moved somewhere without them and have had three attempted break-ins” (Non-shuttered respondent 152).

A few respondents exhibited a more complex understanding of the issues, one commented:

“Shutters are one thing that attracts [offenders] to a property as they indicate;
1. The house is empty / the occupants are on holiday
2. The occupants have items of value that they are trying to protect
3. The shutters afford burglars some level of privacy when carrying out the deed.
All of the above as well as watching the property for owner activity assist burglars to choose a prime target” (Shuttered respondent 25).

A non-shuttered respondent reflected on his / her sense of personal safety when walking past properties with shutters:

“I have no sense of threat but also no sense of security either. It looks as though if I was in danger, nobody would open the door” (Shuttered respondent 68).

The perceived lack of potential assistance was a relatively common response associated with the residents living in the shuttered property:

“I can't be seen and wouldn't know if anyone was home for me to approach if were in trouble” (Non-shuttered respondent 115), and;

“I wouldn't expect assistance or expect them to even notice me if I need it” (Shuttered respondent 40).

In terms of the potential for social interaction, one respondent perceived the shuttered property as very negative, commenting:

“It's a suburban fortress – it doesn't look like they want to look at the world at all!”(Non-shuttered respondent 250).

In relation to the non-shuttered property, some respondents perceived that the lack of shutters indicated enhanced levels of safety:

“No roller shutters suggests that there may be lower levels of crime. The people feel safe and thus have not attempted to increase the security of their homes” (Non-shuttered respondent 160).

Finally, there was some agreement that active guardianship would be more likely in relation to the non-shuttered property. One non-shuttered respondent commented:

“If I screamed, the residents could easily look out the window and I feel it is more approachable and less like a fortress” (Non-shuttered respondent 75).

Interestingly, most (75%, n=270) of the respondents did not believe that security shutters should be regulated. In terms of planning permission in the UK, it is a highly complex area, which is outside the scope of this paper. However, different types of shutters may represent a change in the material use – and therefore constitute development – and require planning permission. Other types of shutters do not.

As discussed earlier, in WA, roller shutters are not restricted under any planning policy. Their use however, may contradict a number of policy objectives including maximising visual amenity and passive surveillance under the R-Codes (Western Australian Planning Commission, 2008).

Interestingly, the State's Designing Out Crime Planning Guidelines (Western Australian Planning Commission, 2006) recognise that shutters can contribute to reducing opportunities for crime while acknowledging the potential conflict with community-wide activities, visual amenity and fear of crime. Indeed, they state security shutters “can also potentially diminish surveillance and community ownership” (Western Australian Planning Commission, 2006, p19). Arguably, a review

of planning policy approaches to the use of security shutters appears to warrant further investigation in various jurisdictions, states and countries.

Conclusion

The findings from this research largely support the work of Nelson's (1999) in the retail / commercial setting. Shuttered properties were perceived to reduce burglary, but were also associated with lower levels of surveillance, social interaction and personal safety at street level. The findings also suggest that residential security shutters represent an example of conflict between the CPTED elements of target hardening / access control and natural surveillance. As an example of SCP, the benefits of a hardened target at the individual building level appear to come at the expense of street surveillance, social interaction and personal safety at the community level. The respondents in this survey generally agreed on this point. Indeed, Wortley (1996, p128) has argued, "at some point ... situational crime prevention runs the danger of becoming counter-productive". Although security shutters were perceived by the respondents in this research to reduce burglary, they were also perceived to be counter-productive at the community level – by reducing natural surveillance, social interaction and levels of personal safety in the street. Furthermore, since no studies have investigated whether burglary rates are reduced by security shutters in the residential setting, the claim that they represent a commodity of fear / anxiety remains a potent one. We might ask if the pursuit of residential security shutters in WA is in part, a result of the 'anxiety market', which generates its own paranoid demand (Lee, 2007).

In terms of Hollis *et al's* (2012) 'stages of guardianship' (see Figure 2), properties with security shutters are perceived to provide zero levels of guardianship – since the residents are not visible (even if they be at home, inside the property). This research concerns one suburb in WA and the findings are not necessarily transferrable to other suburbs. However, as discussed earlier, the clustering of shuttered properties in the same street could be signalling the emergence of the fortress suburb. This is potentially in response to local crime problems. However, it may also be the result of unfounded fears and scare tactics of the security industry and the 'anxiety market' (Lee, 2007).

Future research is required to investigate whether properties with security shutters are associated with reduced rates of residential burglary. The perceptions of offenders on the deterrent effect of security shutters, is also a potential area of further investigation. In an increasingly security-conscious world, it will be interesting to discover how prevalent the use of security shutter is, in other Australian States and jurisdictions / countries across the World.

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