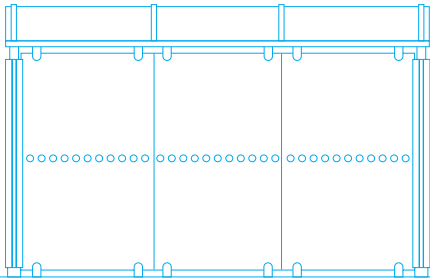
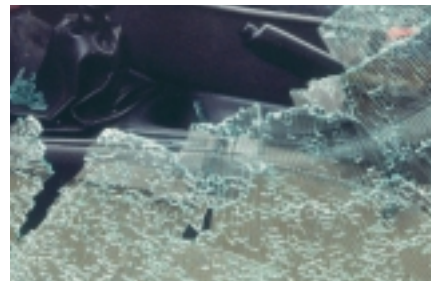


**"The solution is to design out crime. By doing so, you reduce the volume of crimes that are committed. Prevention is really the only hope. And I think it's important to get designers switched onto that wavelength, to believe in what is required."**



It might seem a little odd at first glance to see the word 'design' in the same sentence as 'crime'. And it might be hard to believe that design can really be effective in the tough, violent world of the criminal. After all, isn't design about making things pretty, and crime about smashing things up? Isn't design superficial, and crime fundamental? Isn't design about arty creativity, and crime about basic greed? Isn't design about pleasure, and crime about pain?

But as the pen is mightier than the sword, so is design mightier than crime. Because if you design something to be crime proof, then the crime can't happen.

(Oh really? So we're going to let a bunch of designers loose in the criminal world and all the baddies will run away? Good one!)

What are the arguments against letting designers loose in the criminal world? Well, first and foremost, some would argue, designers are expensive. True, they often are. But as you'll see from the enclosed case studies, time and time again the investment up front pays huge dividends in reduced criminal activity further down the road. And that makes them cheap. And, as you'll also see, their creativity can often generate inexpensive solutions to seemingly insurmountable problems.

And anyway, why shouldn't the fight against crime be pretty! **These case studies show that you don't have to have houses covered in ugly locks and window bars to make them secure, that you don't have to have clamps on your car stereo, public seating made out of hard cold steel, schools built like prison camps. Security doesn't have to be hard, it can be soft and easy. And it will still work and save you hassle, time and money.**

But what do designers know about crime? Fair point. In many cases, the answer is 'not a lot', and that's what these case studies are all about. They aim to show a wide range of people how to make products as crime-proof as possible. Those people might be in business, in design, in education, or in government.

But one thing the designers featured here have clearly learnt is that most crime pivots on opportunity. **The case studies show it over and over again. Crime happens because the opportunity is there to commit it, and judging by rising crime rates, people are increasingly inclined to take that opportunity. Take the opportunity away, and, in large part, the impulse to commit crime will go away too** – maybe not for the hardened criminal, but it will for the thousands of casual criminals.

How do you take it away? You design it out. Greg Lawrence, Environmental Criminologist for Tesco, makes an important point: "Prevention is better than cure". Who would have believed that old cliché was such a political hot potato? Many people still call for more police and tougher sentencing but the fact is that only 3% of crimes ever get as far as court and each prison place costs over £20,000 a year.

As Greg points out, "the solution is to design out crime. By doing so, you reduce the volume of crimes that are committed. You'll probably catch the same number of people – but at least they'll represent a much higher proportion of all the people responsible for crime. Prevention is really the only hope. And I think it's important to get designers switched onto that wavelength, to believe in what is required."

This collection of case studies features commercial and public projects that have effectively designed out crime. They range from a car stereo theft protection system to drinking glasses that have reduced violent attacks. From secure houses to secure shops. They all contain lessons for everyone. And the main lesson is this: get designers, builders and manufacturers to understand that crime can be defeated by design, and we'll live in a safer, freer, more civilised society.

<b>ORGANISATION</b> PARKSAFE SYSTEMS LTD	<b>PROJECT</b> SECURE CAR PARKING SYSTEM	<b>BRIEF</b> TO DESIGN A CAR PARK WHERE THE CHANCE OF HAVING YOUR CAR STOLEN OR DAMAGED IS NEXT TO ZERO	<b>DESIGN SOLUTION</b> AN INNOVATIVE HIGH- TECH SENSOR BUILT INTO EVERY CAR- PARKING SPACE WHICH DETECTS WHETHER THE VEHICLE IS MOVED	<b>IMPACT</b> A ZERO CRIME RATE AND THE CREATION OF A BUSINESS WITH MASSIVE COMMERCIAL POTENTIAL
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There are a few people who are critical of Parksafe, saying that it is 'over the top', yet crime has been reduced to zero and feedback from customers is extremely positive. Indeed, an independent survey showed that 97% felt safe in the car park and 100% that their vehicle and its contents were secure.



stay shoppers as well as people who want to park overnight. You pick up your ticket as per normal, and then find a free parking bay. The bay has a big number on it. On your way out, you pass the Bay Controller machine. You put your ticket through it, and it activates the sensor under your car. This is a device that keeps an eye on the undersurface of the car and detects any movement above a preset level. If someone is kicking the car, or trying to break into it, the alarm goes off. When you come back to the car park, you put your ticket in the Pay on Foot machine, and the sensor is switched off.

"The CCTV system is comprehensive, and so is the PA. If we see a bunch of lads drive in we know to watch for them later. Sometimes they come back a bit drunk. We watch them, say, go up to level five, where they think no-one's watching them and then they might start larking about. Play fighting. The sort of behaviour that's fine by itself but can make them all a bit leery. If it looks like getting out of hand, we bollock them! We say, over our very loud PA: "OK boys, settle down, get in your car, and LEAVE." And the amazing thing is, they always do."

With panic buttons set at every five metres, 190 CCTV cameras in a typical installation, car exits controlled by attractively designed doors to prevent casual pedestrian access, automatic control of exits to prevent escape by criminals, reduced entrances and exits, all monitored, suddenly the car park is becoming one of the safest places in town.

"We used to have a problem of people urinating in the stairwells. Of drug abuse in all the dark corners. Of tramps and prostitutes. The year before we moved in to the Derby car park, there were 171 reported crimes in the car park. And the police told me that for every crime reported, there were on average three that hadn't been. The car park was being used less and less. The council had redecorated it, installed 16 CCTV cameras and employed a patrolling officer. This reduced crime a little for about six months, but it soon came back.

**"Now, in four years of operation there hasn't been a single incident. No crime at all! No graffiti, no theft, no breakage. Nothing. We're getting 400 cars a night on the weekends. Which is pretty amazing really, because you have to pay to come in here. People are prepared to pay for security. All the surrounding parks, most closer to the city centre than us, are free.**

"We offer the car user a guarantee. If their car gets damaged here, we'll pay for it. Though I do actually video scan the cars on the way in to make sure I'm not going to be caught with a fraudulent claim! Now more and more middle-aged and elderly couples use the car park at night – and women on their own. Because they feel safe. Usage was 10% up on last year. That's unknown in this business – especially with no new stores opening up around us.

"It was hard to get this project off the ground. I did most of it off my own bat. I put a lot of

Ken Wigley, inventor and chairman of Parksafe Systems



money into it to develop the system, and built it up on paper over a couple of years. I thought: 'This will be easy to market.' I seriously didn't think I'd have a problem, I was so convinced it would be such a good idea. So once I'd created the design and prototype sensor, I took it round various bodies and businesses. All for nothing. Until I came full circle back to Derby where someone in the city council had the balls to say: 'Let's try it!' Then we were able to get private investors and banks to raise half a million. It's a long-term project. There's no real return yet. It'll be ten years before we see any serious profit, but it's definitely going to be worth it in the long run. We've got a new one opening in Lancaster in October 2001."

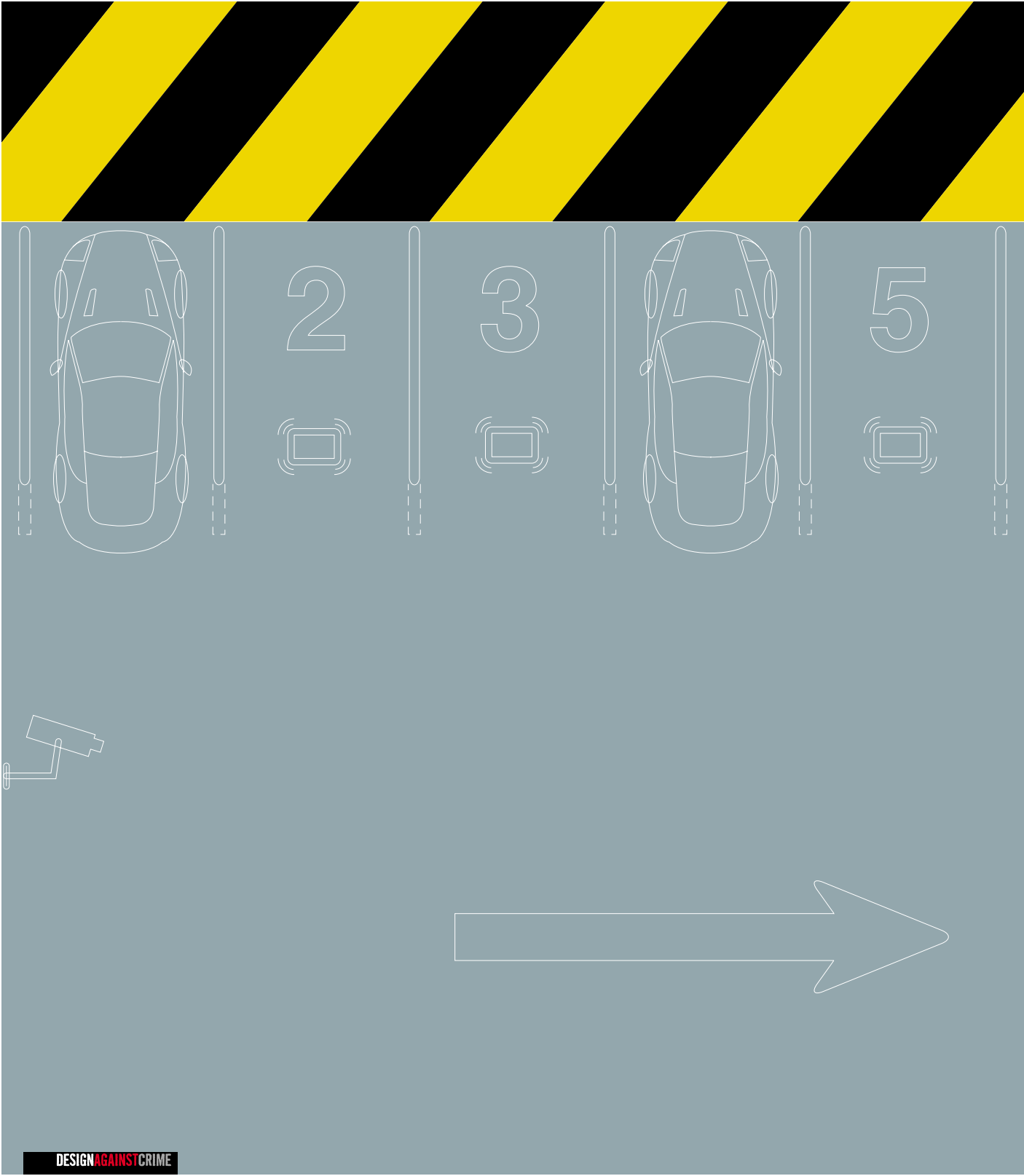
There are a few people who are critical of Parksafe, saying that it is 'over the top', yet crime has been reduced to zero and feedback from customers is extremely positive. Indeed, an independent survey showed that 97% felt safe in the car park and 100% that their vehicle and its contents were secure. Nearly everyone that parked there felt that paying an extra 20p per hour was worth it and/or good value for money.

Ken also plans to sell the detector system to private owners who park their cars in driveways. That's nearly 14 million potential new customers...

<b>ORGANISATION</b> PARKSAFE SYSTEMS LTD	<b>PROJECT</b> SECURE CAR PARKING SYSTEM	<b>BRIEF</b> TO DESIGN A CAR PARK WHERE THE CHANCE OF HAVING YOUR CAR STOLEN OR DAMAGED IS NEXT TO ZERO	<b>DESIGN SOLUTION</b> AN INNOVATIVE HIGH- TECH SENSOR BUILT INTO EVERY CAR- PARKING SPACE WHICH DETECTS WHETHER THE VEHICLE IS MOVED	<b>IMPACT</b> A ZERO CRIME RATE AND THE CREATION OF A BUSINESS WITH MASSIVE COMMERCIAL POTENTIAL
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## HUNKY-DORY MULTISTOREY HOW ONE MAN'S INNOVATION TRANSFORMED A CRIME-RIDDEN CAR PARK







You come home from a trip abroad. You walk to your car in the multistorey airport car park. You don't see it at first, though you spot a similar car with smashed windscreen and the dashboard all ripped about. Then it dawns on you. That IS your car! You rush to the attendant's office. You say: "My car's been vandalised while I was away." The attendant looks at you, a bored expression on his face. "See that sign mate?" he says, indicating, with a slight raising of his eyebrows, a sign over your shoulder. "It says: 'All vehicles left here at their owner's risk.'" End of conversation.

You've been out in town for a drink with some mates. You're walking back through a dark car park alone. Strange people are about. You hurry. When you approach your car you see it is surrounded by a gang of youths. Empty tins of lager are lying crushed on the concrete

floor. There's a banging noise. Then, as you get closer, you see what's happening. They are kicking your car. You stop. "This your car?" they ask, as they continue to kick the door panels. End of conversation.

These incidents happen in car parks around the UK every day. In fact the first incident above happened to Ken Wigley, around 12 years ago. He was so furious with the attendant's 'couldn't care less' attitude, that he decided to do something about it – something dramatic and constructive.

He invented Parksafe.

Ken Wigley is now chairman of Parksafe Systems Ltd: "I'm an agricultural engineer. I had recently developed a sensor system for a forage harvester, a metal movement detector. If it spotted a horseshoe or even a beer can, it

would automatically shut the machine down before the metal wrecked it.

**"Parking is pretty boring stuff, but the more you get into it, the more intriguing it becomes. I was thinking: 'How could the attendant have prevented what happened to my car? If he couldn't see or hear it happening, then how could he know?' So I thought: invent a sensor that can do his job for him. One that can tell if the car is being moved by people who shouldn't be moving it. And so I did."**

Not only did Ken invent a sensor, he designed a whole secure car park system. "What happens if you drive into a Parksafe car park, say the 24-hour multistorey on Bold Lane, near the shopping centre in Derby? It's got 440 parking bays, covering ten floors. It's designed for short-



<b>ORGANISATION</b> ESQUIRE COLLECTION	<b>PROJECT</b> THEFT-RESISTANT HANDBAG	<b>BRIEF</b> TO DESIGN A HANDBAG THAT IS IMPENETRABLE TO PICKPOCKETS	<b>DESIGN SOLUTION</b> A PRESSURE TRIGGERED ALARM BUILT INTO THE BAG LINING, TOUGHENED STRAPS TO PREVENT 'SLASHING' AND A SPECIAL ZIPPER TO MAKE IT HARDER FOR THIEVES TO STEAL THINGS FROM INSIDE THE BAG	<b>IMPACT</b> THE BAG IS FOUND TO BE SO EFFECTIVE AT PREVENTING PICK- POCKETING THAT DEMAND FOR THEM OUTSTRIPS OTHER RANGES
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Anti-theft designs began outselling the unalarmed versions, and the market volume for the thief-proof bags increased by 10%.



pressure from a knife. But the big question was – where should it be placed? Firstly, they decided to test it in a stylish leather bag, chosen because it was a popular bag – both with the public and the bag-rippers. Then the company researched the incision methods used by bag-rippers, and, after customer feedback on early models, eventually came up with a location for the sensor, actually within the leather itself.

Again, after listening to retail feedback on prototypes, **they put the alarm into a small pouch – which prevented it from falling out after the thief had made his cut, and also helped prevent damage to its delicate wiring. The company also decided to use thicker leather, to make slashing more difficult. And, on this particular bag, the zipper was moved to make it harder for thieves to access. They also introduced a**

**wire into the shoulder strap to make it far harder for thieves to slash the strap and pull the bag away.**

Much crime prevention works by telling the criminal that there's no point trying. For example, the missing faceplate on a car stereo system says: "Don't break into this car, because the stereo is worthless to you." Large alarm systems on the side of the building say: "Don't bother trying to burgle us – you'll wake up the whole neighborhood and the cops will be here in seconds." So Esquire added tags to the bags carrying an instantly recognisable logo that told pickpockets they were wasting their time.

Marketing the bag proved problematic at first. One company representative said: "It is very difficult to transform a technical product into a fashion item, if only because fashions change seasonally. We found we had to play down the

technical side of it, or we risked damaging our brand. So we talked less about anti-theft devices, and more about fashion and safety."

Esquire was nervous about potential failure, and they decided to convert only 5% of their production to include anti-theft technology. But they need not have feared. Anti-theft designs began outselling the unalarmed versions, and the market volume for the thief-proof bags increased by 10%. Soon the bag was picking up awards, and their technology partner, CNE Tech, was beginning to market the product in Japan, Taiwan, and Hong Kong. As Myoung-Soo Lee, a manager in the marketing department said: "We made 15,000 pieces and we sold 90%. This is a success story."

<b>ORGANISATION</b> ESQUIRE COLLECTION	<b>PROJECT</b> THEFT-RESISTANT HANDBAG	<b>BRIEF</b> TO DESIGN A HANDBAG THAT IS IMPENETRABLE TO PICKPOCKETS	<b>DESIGN SOLUTION</b> A PRESSURE TRIGGERED ALARM BUILT INTO THE BAG LINING, TOUGHENED STRAPS TO PREVENT 'SLASHING' AND A SPECIAL ZIPPER TO MAKE IT HARDER FOR THIEVES TO STEAL THINGS FROM INSIDE THE BAG	<b>IMPACT</b> THE BAG IS FOUND TO BE SO EFFECTIVE AT PREVENTING PICK- POCKETING THAT DEMAND FOR THEM OUTSTRIPS OTHER RANGES
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## IN THE BAG HOW A KOREAN FASHION COMPANY PUT OFF PICKPOCKETS





“Once a target is selected, a thief is able to steal a wallet within three seconds. It is elementary for a novice to perform bag-plucking, especially with the recent fashion in Seoul for long shoulder straps, which puts the bag along the waistline.”



Put yourself, for a moment, in the mind of a criminal. You're in a London tube station in the rush hour at the end of a working day. You are hunting for your victim, a woman who looks both busy and distracted. And, as Lady Luck would have it, there she is, coming right towards you. Smart, wearing expensive clothes and carrying a light leather bag all zipped up but hanging on a long shoulder strap. She's clearly got a bob or two. She's moving fast. It's looks like she's late, worried, perhaps, about missing a train connection. There, look, she is pushing through the crowd. Her shoulder bag is caught. Without looking, she pulls it after her. Perfect.

You pick the scalpel from your pocket, and slip off its protective sheath. She passes you. You move in behind her as the crowd funnels towards the escalators. You'll have to move quickly now, and your heart is beating fast. You're just behind her, her black shoulder bag a few inches from you. People are crushing up

against each other. Everyone's in a hurry to get home. You bunch up behind her and silently run the scalpel through the side of her bag, all the time looking at the back of her head. You have only two seconds left before she's on the escalator. You slide your hand in, hunting for the fat purse. With practised fingers you find it and pull it out. She turns, but she's already on the escalator. She's looking down at the bag, but you are already moving in the opposite direction as she sinks down with the crowd. The last sight you have of her is her suspicious face – but you know she hasn't clocked you and she probably isn't even sure what's happened. Yet. Nice one.

Well, it happens every day. But wouldn't it have been good from her point of view if an alarm had gone off just as soon as the thief's blade had started the cut? Wouldn't it have been great if the blade itself couldn't get through the leather? In Korea they've been developing

fashionable bags that do both. The move follows extensive research by Korean criminology and police agencies into pick-pocketing, or what they call the 'ground strike'.

Youn-Soo Oh is an investigator with the Seoul Metropolitan Police Agency: "There are two main types of ground-strike. The first is 'Bag-pluck' – opening the bag by the button or zipper to steal a wallet. The second is 'Bag-rip' – swiftly cutting the bag with a knife. Once a target is selected, a thief is able to steal a wallet within three seconds. It is elementary for a novice to perform bag-plucking, especially with the recent fashion in Seoul for long shoulder straps, which puts the bag along the waistline.

"When fashions changed in 1997, and the shoulder straps became shorter, bringing the bag further up the body, ground strike levels suddenly declined. Only the 'bag-rip' method can be used with bags that hang just under

the arm. To execute such technique, a perpetrator must be an experienced pick-pocket. They would have to have at least three to four years' experience in the field."

**Korean research shows that criminals look for certain types of bags. Vinyl or light leather are most vulnerable, because they are easy to slash. Long straps that drop the bag down to the waistline make an easy target for thieves. Big bags are easier to get into than small ones.**

Esquire Collection, makers of fashion accessories, and CNE Tech, who produce patented alarm sensors, have been working together, using information like this, to produce the world's first anti-theft handbag. The plan was to use an alarm system, which would be set off when a separate sensor, connected to the alarm by wires, was stimulated. The sensor was designed to react to



ORGANISATION LANDSCAPE PROJECTS	PROJECT HULME PARK	BRIEF TO DESIGN A SAFE AND ATTRACTIVE CITY CENTRE PARK	DESIGN SOLUTION PSYCHOLOGICAL RATHER THEN PHYSICAL BARRIERS ARE DESIGNED INTO THE PARK LAYOUT TEENAGERS HELP TO DESIGN THEIR OWN SPECIAL AREAS TO 'HANG OUT' IN THE PARK	IMPACT A PARK TO BE PROUD OF – RELATIVELY CRIME FREE AND DESCRIBED AS 'A TRIUMPH OF DESIGN'
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“Parks are one of the last non-privatised spaces where your activities are not proscribed by the owners. You've got to treat that seriously. It's very important to people.”



Adults like parks to be like big landscape gardens, children like lots of bright colours and playful stuff, and teenagers want something more provocative than a garden and not as 'babyish' as bright colours. And the girls wanted something different to the boys. Nightmare. But we eventually hit on a winning theme – swimming and surfing.”

“We created a ‘swimming pool’ out of vandal-proof resin-bonded glass that was coloured blue through to green. It’s beautiful to look at. We built two long benches out of tough laminated timber which look like surf or diving boards. And we brought in a boat builder from Bristol to create a ship-shaped rain canopy. It created a sense of beach fun, relaxation and colour that everyone enjoys. We also created play areas for children, including an exciting

‘treasure island’ near the school, complete with dunes, shipwrecks and ‘monsters’. Dogs are kept out by the doggie equivalent of a cattle grid. **The kids love it and use it regularly. It's a great place to be on a summer's day – or night. And they care about it. There's been no vandalism.**

“Next to the existing Proctor’s Youth Centre, we created an area designed specifically for sports coaches to train a whole team. It is a circular area, next to the football pitch, just five metres across so the coach can see the entire team. We have a skateboard area too, of course, with half pipes and jumps.

“I’m very proud of this place. The Manchester Mardi Gras is going to start from here. And Rolls Royce are going to use it for a vintage

car rally – well, the park is built on the site of the first Rolls Royce factory where they made the Silver Ghost. Parks are one of the last non-privatised spaces where your activities are not proscribed by the owners. You’ve got to treat that seriously. It's very important to people.”

The park has been relatively free from crime and was described by a local police officer as “a triumph of design”.

ORGANISATION LANDSCAPE PROJECTS	PROJECT HULME PARK	BRIEF TO DESIGN A SAFE AND ATTRACTIVE CITY CENTRE PARK	DESIGN SOLUTION PSYCHOLOGICAL RATHER THEN PHYSICAL BARRIERS ARE DESIGNED INTO THE PARK LAYOUT TEENAGERS HELP TO DESIGN THEIR OWN SPECIAL AREAS TO 'HANG OUT' IN THE PARK	IMPACT A PARK TO BE PROUD OF – RELATIVELY CRIME FREE AND DESCRIBED AS 'A TRIUMPH OF DESIGN'
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## PARK LIFE HOW A CRIME HOT SPOT WAS TRANSFORMED INTO THE PERFECT PARK





The transformation of Hulme, one mile from Manchester city Centre, is fast becoming a legend in civic renaissance. The area was notorious for muggings, burglary, robbery and poor housing. As life there deteriorated during the 80s into a kind of living hell, it was decided that Something Had To Be Done.



An open-plan style was chosen, with pathways and roads connecting the park to other parts of the city to encourage people to use it and increase passive surveillance

Parks do make a difference in a city centre. They are a vital relief from the claustrophobia of terraced high-rise life. They are havens of freedom and peace in the heart of constriction and clamour, they are oases of vibrant natural colour against a desert of pavement and concrete grey. They are balm to the mind and to the soul.

Which is all very pretty. But they are also great places to score drugs, mug passers-by, swap stolen goods and bully children. They're a boon to vandals, because people have to cross large, open spaces to stop you spray-painting the wall, breaking the swings, etc. There's plenty of room to leg it.

The transformation of Hulme, one mile from Manchester city centre, is fast becoming a legend in civic renaissance. The area was

notorious for muggings, burglary, robbery and poor housing. As life there deteriorated during the 80s into a kind of living hell, it was decided that something had to be done. The local council and its partners secured substantial EC funding and began planning a total reconstruction of the area. The £2.2 million project to create a new park at its heart fell to Neil Swanson, the Practice Principal of Landscape Projects.

Neil Swanson: "It was a visionary project. Nothing like it had happened in Manchester for 50 years. We were being given the opportunity to build a park from scratch, to think: 'What should a park be?'" The brief was to design a safe and attractive park in the city centre that could be used by a range of different groups. In short they wanted a park that was a wonderful place to be, rather than a dangerous

place to be. But how was it possible to make the park open and welcoming, and yet secure? The answer lay in the creation, not of physical, but of psychological barriers.

The first technique was size. The park was never more than 70 metres wide at any point. Neil Swanson: **"A park should not be too deep, as this makes people feel uneasy. We can pick out figures at a distance of 70 metres, recognising age, gender, even perhaps facial expression. You can recognise people and, perhaps subconsciously, one is aware of not being anonymous."**

The second technique was surveillance. It was agreed that new housing would be built facing on to the park, partly to give residents a good view, and partly to increase the sense of security. Landscape Projects were happy to keep



Children's play area



Horizontal railings were chosen to maintain visibility



Sheltered seating designed to ensure good surveillance

the road running through the middle of the park, and encouraged parking around the perimeter to increase the sense of busyness and watchfulness. For safety reasons the road needed to be fenced on both sides.

The type of fencing became a contentious issue. Neil: "You have to think of how it's going to be abused. You have to be able to repair a small area, without needing to change the whole lot." Neil opted for a low brick wall, topped with black, horizontal steel railings built in removable sections. "You can see through horizontal railings much more easily than vertical ones. There used to be 'sod off' railings here. But this park is about welcome and inclusiveness. The council were concerned that children would hurt themselves if they sat on (and then fell off) the top horizontal bar, so we

set it at an angle. They can climb the railings, but it is uncomfortable to sit on the top one. So they don't do it."

Landscape Projects prevented cars from entering the park with attractive stainless steel bollards. They cut small water-recycling trenches which also serve to stop bikers riding at high speed across the park. The firm developed a very open-plan style with pathways and roads connecting the park to other parts of the city. They wanted people to use it and so contribute to the sense of security and passive surveillance. Neil: "The more people about, the less is your fear of crime. You feel safe with people about."

**For Neil, it was vital that the park served all ages, especially children and teenagers. "It was important that we could create a space for young people to**

**hang out."** But who was he to say how their part of the park should be? "I felt it was vital that I got alongside the people who were going to use the park so we could design it specifically for them." So he set up a series of meetings with young people from the area. "The teenage group was extremely boisterous and enthusiastic. But it soon became apparent that the boys wanted loads of macho equipment in the park, and the girls really weren't that bothered. So I tried bringing an artist in to work with mosaics and to see if he could capture their imagination. Frankly it was going nowhere and this whole part of the project began to look a bit sad. We had to rethink.

"We realised that there was a big difference in the three age groups we were catering for.

ORGANISATION IDEO	PROJECT SHOPPING TROLLEY	BRIEF TO DEVELOP THE PERFECT SHOPPING TROLLEY – ONE THAT IS ATTRACTIVE TO SHOPPERS BUT NOT TO THIEVES	DESIGN SOLUTION REMOVE THE MAIN BASKET SO THE TROLLEY IS OF NO USE TO THIEVES AND REPLACE IT WITH SEVERAL SMALL REMOVABLE BASKETS THAT MAKE SHOPPING EASIER AND STOP GROCERIES GETTING SQUASHED.	IMPACT A DESIGN CONCEPT WHICH SUCCESSFULLY MAKES THEFT OF TROLLEYS FUTILE
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Without the basket to pile your mates into for a lark about town or to turn upside down and cook your burgers on, you have nothing but a tall narrow frame on wheels. You can't carry anything in it – it's of no practical use at all.



to steal, and a cart with its own scanner to check prices. We voted for the 'cool' ideas although they couldn't be too far-out because they had to be buildable in a couple of days. We split into four smaller groups that would have three hours to build mock-ups, each team focusing on a separate concern – shopping, safety and stealability, checkout and finding what you're looking for. By 3pm 16 of us were jammed into the IDEO workshop along with the dozen machinists and model makers who work there every day."

The following morning they revealed the end-product for the cameras. "The old boxy cart we all know and hate had been replaced by a sleek, gleaming creation. The main frame sloped down on each side into a curve that tucked back, with more of a sports car line. The main basket was gone and in its place was an open frame – designed so that six [plastic]

hand baskets would neatly nest inside in two layers, allowing shoppers to dart down the supermarket aisles and avoiding the clustering of trolleys round a popular shelf. At checkout, clerks would pack the groceries in plastic bags that neatly hook onto the frame."

The finished cart featured a scanner, and (inevitably) included two cup holders for hot and cold drinks on the move. It had a baby seat with a snap-in safety bar with a blue plastic play surface. It featured a tubular frame beneath the baskets for carrying items such as big packs of toilet roll or nappies. It also had back wheels that allowed you to lock them in forward position with a simple tug. And the racked baskets stop your shopping from getting squashed.

The IDEO trolley has another big plus – its security features actually enhance its functionality. It is a better product because

the removable baskets make life easier for the shopper, both through protecting goods from crushing and helping alleviate aisle congestion. How do these features make the trolley more secure? Because they replace the big wire basket, which gives the trolley its thief-appeal. Without the basket to pile your mates into for a lark about town or to turn upside down and cook your burgers on, you have nothing but a tall narrow frame on wheels. You can't carry anything in it – it's of no practical use at all.

Peter Skillman of IDEO says: "Enlightened trial and error succeeds over the planning of the lone genius." Well, perhaps not always. But in this case it certainly produced great results very fast.

Quotations taken from Kelly, Tom, *The Art of Innovation*, Currency, Doubleday, New York, 2001

ORGANISATION IDEO	PROJECT SHOPPING TROLLEY	BRIEF TO DEVELOP THE PERFECT SHOPPING TROLLEY – ONE THAT IS ATTRACTIVE TO SHOPPERS BUT NOT TO THIEVES	DESIGN SOLUTION REMOVE THE MAIN BASKET SO THE TROLLEY IS OF NO USE TO THIEVES AND REPLACE IT WITH SEVERAL SMALL REMOVABLE BASKETS THAT MAKE SHOPPING EASIER AND STOP GROCERIES GETTING SQUASHED	IMPACT A DESIGN CONCEPT WHICH SUCCESSFULLY MAKES THEFT OF TROLLEYS FUTILE
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## SMART CART HOW A LEADING DESIGN TEAM WENT OFF ITS TROLLEY





“Nearly two million trolleys are stolen in the US every year, costing consumers (ultimately) \$175,000,000 annually.”



Have you ever cooked a sausage on a shopping trolley? Not one you've nicked from a supermarket, of course, but one you found abandoned down the road. You know the one – it had been sitting on wasteland for months. You haven't? Oh well, people do, because the wire frames make great barbecue grills...

Now this is a story all about preventing crime, and here we are, apparently proposing a criminal use for stolen goods. We're not of course, we're pointing out a problem. Shopping

trolleys get stolen, all over the UK and the United States. In fact, nearly two million trolleys are stolen in the US every year, costing consumers (ultimately) \$175,000,000 annually. More than 22,000 people a year, most of them children, have to go to hospital because of shopping trolley-related accidents. **Here the problem is being discouraged by forcing people to pay a £1 deposit before taking a trolley. Which can be pretty inconvenient, if you don't have a £1 coin on you. And anyway, trolleys do**

**still get stolen. Some people think they're worth a quid** (have you seen the price of barbecue grills?).

Now the Americans have come up with a better way, in fact, a wonderful idea all round for a shopping trolley.

The American design company, IDEO, were asked by ABC's Nightline programme to redesign the shopping 'cart' (as the Americans call it) in just five days. What's fascinating about this tale is not only the fact that in the

end they generated a trolley that solved crime and safety issues, but also the journey. The process of how they generated the idea has lessons for everyone interested in designing out crime. It's known at IDEO as 'focused chaos'.

Tom Kelly is IDEO's general manager: "The shopping cart was an ideal and imposing challenge. The cart is an American cultural icon, as familiar as the Zippo lighter, and just as equally frozen in time. On day one, we split

into groups to immerse ourselves in the state of grocery shopping, shopping carts, and any and all possibly relevant technologies. We were getting out of the office, cornering the experts, and observing the natives in their habitat. Team members saw safety issues and watched parents struggle with small children.

"By 11am (day two) the focused chaos started winding down, hundreds of crazy ideas and sketches crowded the walls, as well as plenty of solid ones, like a cart that nobody would want



<b>ORGANISATION</b> EDMUND KIRBY ARCHITECTS	<b>PROJECT</b> PARRS WOOD SCHOOL	<b>BRIEF</b> TO DESIGN A SCHOOL BUILDING THAT WOULD DETER BULLIES AND BURGLARS	<b>DESIGN SOLUTION</b> A BUILDING WITH A LIGHT OPEN LAYOUT BUT ONLY A SINGLE ENTRANCE TO IMPROVE NATURAL SURVEILLANCE AND AN ATTRACTIVE OVERALL ENVIRONMENT	<b>IMPACT</b> A SCHOOL BUILDING WHICH IS RESPECTED BY PUPILS AND FREE OF BURGLARY, VANDALISM AND BULLYING
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“Perimeter wall? What perimeter wall? It’s one of the few schools in the land without one. It’s just a collection of buildings in a beautiful park.”



Lockers are not in a locker room but along open corridors where they are far less likely to be broken into

Isn’t all this extremely expensive? “Not at all,” says James Jones. “We’ve applied these principles before to office buildings and commercial property where security issues are paramount. It’s tried and tested, so it’s not expensive.”

But what about bullying? How can the design have helped stop that? “It’s all a question of layout,” says James. “There’s only one central mingling place, there are no dark corners, no areas that cannot be controlled. Stairwells are often a problem spot in schools, so we’ve made the stairs as transparent as possible and also positioned the offices for the head of year or head of department next to the stairwells. It’s part of their role to control those areas.” And following discussions with the pupils, the school has introduced CCTV at head height in the toilets to further discourage bullying. Lockers too, are not in a ‘locker room’ but

along open corridors. This makes them far less likely to be broken into.

But surely with CCTV cameras at every corner, and senior staff watching every trouble spot, isn’t it a bit intimidating? When you walk up to the perimeter wall of Parrs Wood School, doesn’t it feel like you are about to enter a fortress? James Jones smiles as he unveils the pièce de résistance: “Perimeter wall? What perimeter wall? It’s one of the few schools in the land without one. It’s just a collection of buildings in a beautiful park.”

The anti-crime design philosophy is perhaps best summed up in the words of David Cullearn: “Buildings have to respect people, then people respect them”.

<b>ORGANISATION</b> EDMUND KIRBY ARCHITECTS	<b>PROJECT</b> PARRS WOOD SCHOOL	<b>BRIEF</b> TO DESIGN A SCHOOL BUILDING THAT WOULD DETER BULLIES AND BURGLARS	<b>DESIGN SOLUTION</b> A BUILDING WITH A LIGHT OPEN LAYOUT BUT ONLY A SINGLE ENTRANCE TO IMPROVE NATURAL SURVEILLANCE AND AN ATTRACTIVE OVERALL ENVIRONMENT	<b>IMPACT</b> A SCHOOL BUILDING WHICH IS RESPECTED BY PUPILS AND FREE OF BURGLARY, VANDALISM AND BULLYING
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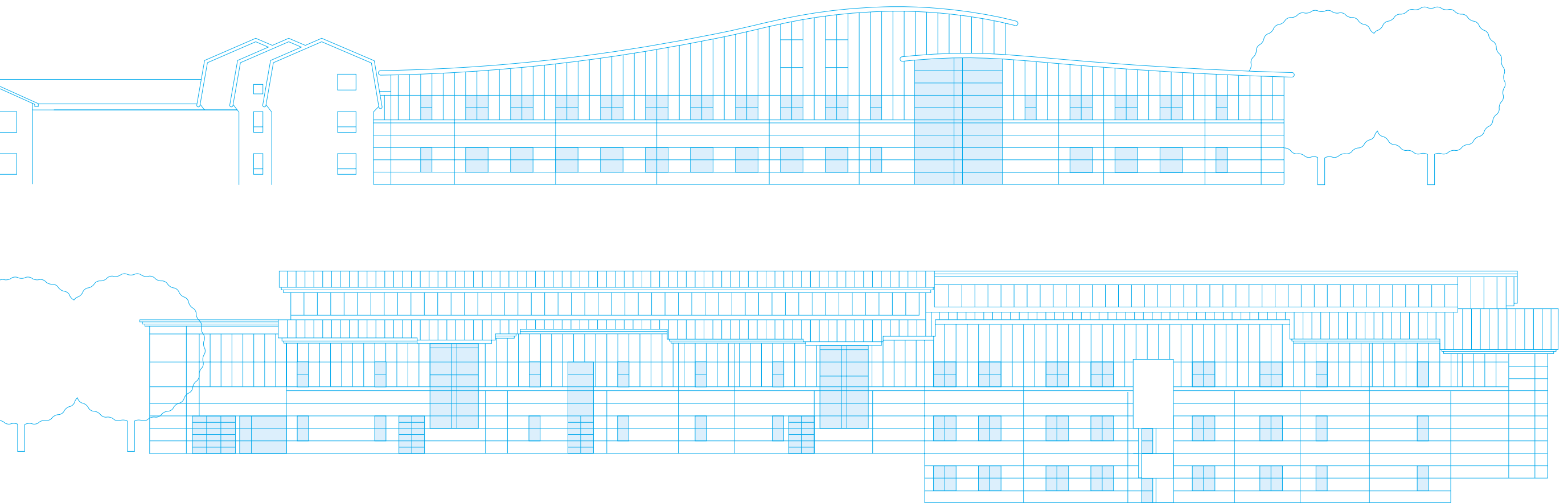
# COOL SCHOOL

## HOW A WELL-DESIGNED SCHOOL RULED OUT BULLYING, BURGLARY AND VANDALISM





**"Security is unobtrusive. We've dramatically reduced the numbers of entrances and exits and introduced fire exits that can only be opened from the inside, as well as CCTV. We've taken away the opportunity for crime."**



How good is design? Can it confront really tough problems? Could design, for example, be used to combat the dreadful problem of bullying at school? At Parrs Wood school in Didsbury, Manchester, it has done just that – and much more.

Edmund Kirby Architects were brought in to build an entirely new school on existing school land. When the school was finished, the staff and students moved in and the old school was demolished. But how was it different to the old school?

James Jones was one of the architects: **"The general organisation of the original school was a great rambling collection of different buildings – with corridors all over the place leading everywhere, and external doors on every part of the school. It was a security nightmare."**

The headmaster, Iain Hall, agrees: "The old school was prefabricated and had 21 entrances and exits. Most of them could be easily kicked in. Kids were even coming in through the skylights. We had a lot of burglary and a lot of vandalism. We had to find a solution. So we started working with Edmund Kirby Architects. It was a long gestation period for this school. We literally walked the plans. What would this door do – how would people move from here to here. The architects were very good, but that mutual consultation was vital."

James Jones: "Firstly, we decided to rearrange the main teaching block of the school along a central avenue – a mall. This is where most of the lessons happen. The main entrance to the school is here. Whether you are staff, student or visitor, you have to pass through a central reception in the mall. The mall conducts a long curve that ends with a great view of the

Mersey valley. When you come out of that you are standing in an external space that features four elements: the teaching block that you've just left, the sixth form centre, the new sports hall and the ancient Parrs Wood House (set to become the school's music and drama department). Three of the blocks are modern buildings, but they have been designed, with the approval of English Heritage, to balance the old Parrs Wood building.

"The old house and its grounds, Parrs Wood Park, was an important influence on the design. There was an opportunity here to create an unusual school environment, more like a university campus than a traditional school, which we thought would be much more conducive to learning and respect. We made good use of the landscaped beauty of Parrs Wood Park.



"Security is unobtrusive. We've dramatically reduced the numbers of entrances and exits and introduced fire exits that can only be opened from the inside, as well as CCTV. We've taken away the opportunity for crime.

"It's a very pleasant place. It feels welcoming and easy to navigate. The main entrance clearly leads to the four parts of the school. And then there's woodland and recreation areas."

Edmund Kirby architect David Cullearn: "You don't get lost. This is important when putting together a building. It should have its own natural route. You can feel where you are – it's not a maze. In fire terms that is also important. If you have public routes, then you can take visitors around. There is the concept of 'a route', which is an added feature. If you know where you are, you feel secure and know that others cannot be hiding in nooks and crannies."

Headmaster Iain Hall: "The new school has now been open for 18 months. We've not had a single break-in. I put this down to several factors; for example, the CCTV coverage is monitored 24 hours a day, and we have an excellent relationship with the security people at the nearby leisure centre (which has been built on old school land as a means of raising funding for the changes). We're now on their perimeter watch. The school is used far more than it used to be, about 18 hours a day. It's almost constantly in use.

"Also, **the place looks and feels so much better. The corridors are carpeted and light floods into the core of the building from high windows. The landscape within the school area offers no concealment.** We worked very carefully on that. And the alarm system is excellent. I say that, but it hasn't actually gone off yet..."



ORGANISATION ABACUS	PROJECT BUS SHELTERS FOR SOUTH YORKSHIRE PASSENGER TRANSPORT EXECUTIVE	BRIEF TO DESIGN A SHELTER THAT PEOPLE WOULD FEEL SAFE AND COMFORTABLE IN WHILE WAITING FOR THEIR BUS TO ARRIVE	DESIGN SOLUTION A GLASS SHELTER TO HELP PEOPLE 'SEE AND BE SEEN' WITH TIMED LIGHTING AND PERCH SEATING TO DISCOURAGE PEOPLE FROM LOITERING	IMPACT CRIME LEVELS FALL, PEOPLE FEEL SAFER, AND ORDERS COME IN FROM ACROSS THE COUNTRY FOR THE NEW SHELTERS
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# CRIME STOPPERS

## HOW AN INNOVATIVE DESIGN TEAM MADE BUS USERS FEEL SAFER

Richard Bowen has a thing about bus shelters. They've possessed his professional mind for the last decade, after four district councils took it upon themselves to transfer bus ownership to the South Yorkshire Passenger Transport Executive (SYLTE), for whom he is Street Infrastructure Manager.

You might think from this introduction that Richard is a bit of a train spotter. But in a sense, the opposite is true. Because train spotters spot trains. Er – that's it. Their passion is entirely focused on satisfying their own sense of order and mystery. Nothing wrong

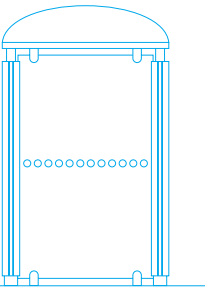
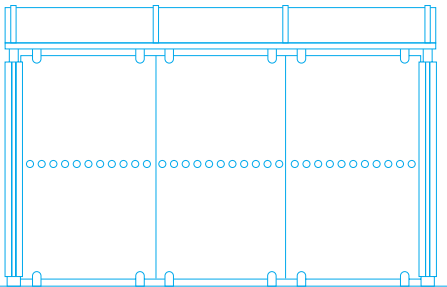


The old bus shelters we all remember were so often dreadful places to wait

with that, but Richard's mission was quite the opposite – his mission was nothing less than to help make a better world. And through that mission, and the work he did with the designers from Abacus, he solved a problem that had become a serious social issue across the country.

The old bus shelters we all remember (and which happily are being gradually consigned to the landfill of history) were so often dreadful places to wait. For a start, as often as not, they stank of urine. Drunk people used them as toilets. So it had to be raining really very hard before anyone would seek cover in them –

especially in the bunker-like brick ones. And then, where travellers were sufficiently desperate for shelter, they would have to take care where they stepped. Because in the brick-black darkness within lurked all manner of hazards – hypodermic needles, detritus of various orders, even muggers. So **there arose a fashion in some quarters for semi-glazed bus shelters to make them less easy to hide in. But vandals took to swinging from the roof, kicking the glass panels and smashing them to smithereens. And they had not been designed with easy repair in mind.**



ORGANISATION ABACUS	PROJECT BUS SHELTERS FOR SOUTH YORKSHIRE PASSENGER TRANSPORT EXECUTIVE	BRIEF TO DESIGN A SHELTER THAT PEOPLE WOULD FEEL SAFE AND COMFORTABLE IN WHILE WAITING FOR THEIR BUS TO ARRIVE	DESIGN SOLUTION A GLASS SHELTER TO HELP PEOPLE 'SEE AND BE SEEN' WITH TIMED LIGHTING AND PERCH SEATING TO DISCOURAGE PEOPLE FROM LOITERING.	IMPACT CRIME LEVELS FALL, PEOPLE FEEL SAFER, AND ORDERS COME IN FROM ACROSS THE COUNTRY FOR THE NEW SHELTERS
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**"The first thing I was keen on was a barrel roof. They're almost impossible to climb on and they shed water very efficiently. And barrel roofs look good!"**



It was time for a change. So Richard and his five staff called in the bus shelter manufacturers to see if they could improve the bus traveller's lot. Abacus came back to SYLTE and said: "We're offering you a clean sheet of paper. We can build anything you want."

Richard Bowen: "The first thing I was keen on was a barrel roof. They're almost impossible to climb on and they shed water very efficiently. And barrel roofs look good! What I also like about the barrel roof is that it does away with the need for a 'flag' sticking out – often a target for vandals. The bus stop location information is put on the end panel instead of sticking out of the roof.

"And glass, I wanted a lot of safely secured glass. Glass from top to bottom. Lots of light. **People queuing for buses feel comfortable if they can be seen – they feel safer and also feel there's more chance the bus might actually stop for them.** I mean, as my operations manager said, 'See and be seen'. You can't see the bus through a brick wall, can you? Glass would increase patronage. I didn't want a mid-rail in

the glass either. I wanted total transparency. I also wanted it to be easy to maintain and repair. I wanted them to feature clear easy-to-read information panels. I wanted them to be reasonably priced. And I wanted people to be proud of them. We worked very hard together to get the right result.

"I'm very proud of these shelters. We've never had a serious crime in any of them. That's a massive change. Of course we get some problems. Because they're dry, clean and illuminated, you get groups of kids sitting and chatting in them until late at night. Well that can be a problem outside someone's house, and these impromptu youth clubs can put other people off using the shelters. So now the lights go off after the last bus. Yes, unlike the old ones, they're illuminated. And we've changed the seating. Abacus's 'perch' seating allows you to rest briefly with your shopping but does not encourage you to sit around chatting.

"People's expectations are high now. We clean the new shelters every week, and we promise a four-hour response time to any reports of

damage. **Before, the shelters would get coated in graffiti and we'd never hear a dickey bird. Now if one of the shelters doesn't get cleaned one week, folk are on the phone straight away!**

"We're still improving them. We're using UV-stabilized polycarbonate in the roof panels instead of glass. And we've speeded up maintenance checks on the lighting. Instead of getting an electrician down to take the cover off the fuse box, the cleaners can pass a specially configured magnet over a concealed switch and turn them on and off, testing for lighting failures. Then they can report them straight away.

"Good ideas catch on. Shelters like these are all over the country now. That makes me feel particularly proud!"



# CLEVER CLOTHES

## HOW THE CLOTHES OF TOMORROW COULD SAVE YOUR LIFE

It has long been the dream of science fiction writers that our clothes will be sentient, designed to react to threat and protect us from attack, able to call for help and provide a homing signal for rescuers. Well, as ever in this rapidly-changing world, science fiction is fast becoming science fact.

Now it is becoming possible to create smart clothing that will protect people from more than just the weather. Now it is possible to incorporate miniature technology in what we

wear that will let people know where we are, and, should we choose, show them what we are doing while we are doing it.

This technology offers the potential to provide people with a new level of security. Imagine, for example, clothing for women, with a built-in GPS (Global Positioning Satellite) system.

**In the event of an attack, the technology would allow your coat or jeans not only to secretly call for help but also to identify your location. For victims of stalk-**

**ing in particular – a crime that is thought to have affected almost a million people in the UK alone – this sort of technology could provide a dramatic improvement to their quality of life.**

Jack Mama, Creative Director of Phillips Design, Intelligent Fibres Division: “Work in this area really began six years ago. The first product concepts that we developed were designed largely to address the issue of portability. We realised that people were



beginning to carry around a growing number of electronic products – mobile phones, palm-top computers, personal hi-fis. As users we want to be connected and equipped with tools for every possible eventuality but don’t want to have to carry them. So, it seemed to make sense to start thinking about incorporating technological devices into our clothes.”

The idea of incorporating technology within fabric is a designers’ dream. It means that they can use their full creativity to generate fashionable, attractive clothing that also happens to be discreetly bristling with versatile technology. Jack Mama: “We did an experimental range for Levi’s – a grand exercise that put our stake in the ground and showed that we could really do what we had been predicting for years. It was part of the learning curve, getting down to the nitty gritty of production. The range sold out completely. I hear now it’s selling for three times the price on the internet.”

Next, Phillips Design started to think about how wearable technology could be used to make people feel safer and this led to the development of a range of innovative high-tech clothing for kids.

Designed to give parents peace of mind, Phillips Design created a garment for kids that uses fabric antennas, radio tagging and miniature remote cameras to pinpoint where they

are. To the children, the coat is first and foremost a device that they can use to play exciting outdoor games.

Jack Mama: “We have devised a series of games in which physical characters with identity chips can be attached to the respective garments. The child sees the character that represents another child as a monster or animal on his or her screen. As the children move around, their ‘characters’ can be seen moving on the screen too. The children play together and have to think up scenarios to explain what is happening. The kids are active, instead of being stuck in front of a TV screen. And the thing is, back on the master screen at home, the parents can also monitor where their children are and what they are up to, providing security and piece of mind. If something goes seriously wrong they can get help to them.”

**The added reassurance that technology like this might bring for parents is powerful and could even bring back to the cities a sense of childhood freedom that is fast becoming forgotten in a world increasingly concerned about the threat to children from kidnappers and paedophiles.**

It is still early days for this technology but it certainly offers designers the potential to develop a whole range of innovative, unobtrusive products that will enhance people’s safety

and security as well as providing fun, entertainment and convenience. But as with much new technology, there are also ethical issues here which will have to be confronted too. Technology like this has the potential to become a major invasion of privacy and in the wrong hands could seriously restrict personal freedom. The challenge for future designers as well as future legislators is to ensure baby’s safety is not thrown out with Big Brother’s bathwater.





ORGANISATION MOSSCARE HOUSING ASSOCIATION	PROJECT ALEXANDRA PARK ESTATE	BRIEF CREATE A HOUSING DEVELOPMENT THAT MAKES PEOPLE FEEL SAFE AND CREATES A SENSE OF COMMUNITY	DESIGN SOLUTION DESIGNERS WORK WITH THE LOCAL COMMUNITY AND POLICE TO ENSURE THAT SUBTLE SECU- RITY FEATURES ARE INTRODUCED WHICH REDUCE CRIMES SUCH AS BURGLARY AND JOY RIDING	IMPACT A DRAMATIC FALL IN CRIME RATES WHICH HAS HELPED THE ALEXANDRA PARK ESTATE BECOME A DESIRABLE PLACE TO LIVE
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# GREAT ESTATE

## HOW A NORTHERN GANGLAND BECAME A PEACEFUL HAVEN

“There was gang warfare in the Alexandra Park area of Manchester,” says Mossclare Housing Association Development Manager, Sefa Amesu. “It was a no-go area. The place seemed almost made for crime. Lots of secluded areas, dangerous walkways, poor lighting and a lack of clear definition between public and private space. Crime and drug dealing had become rife. Police often found themselves involved in chases through this district.”

The inevitable result was desolation. Properties emptied, squatters moved in, drug-taking multiplied, crime climbed still further.

Not, you would have thought, a promising site for a housing development. But Mossclare formed a partnership with Manchester City Council and local residents in a bid to do just this. Mossclare already had a 30-year history of working in Moss Side, and had developed a powerful commitment to tenant involvement. The plan was to redesign the estate using the principles of Manchester’s ‘City Development Guide’ and ‘Secured By Design’ Standards as set out by Police Architectural Liaison Units. This partnership then formed a consortium of local associations called Homecare 2000. The Homecare housing plan comprised 18



ORGANISATION MOSSCARE HOUSING ASSOCIATION	PROJECT ALEXANDRA PARK ESTATE	BRIEF CREATE A HOUSING DEVELOPMENT THAT MAKES PEOPLE FEEL SAFE AND CREATES A SENSE OF COMMUNITY	DESIGN SOLUTION DESIGNERS WORK WITH THE LOCAL COMMUNITY AND POLICE TO ENSURE THAT SUBTLE SECU- RITY FEATURES ARE INTRODUCED WHICH REDUCE CRIMES SUCH AS BURGLARY AND JOY RIDING	IMPACT A DRAMATIC FALL IN CRIME RATES WHICH HAS HELPED THE ALEXANDRA PARK ESTATE BECOME A DESIRABLE PLACE TO LIVE
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“Before, the area was crime-ridden and no one wanted to live there. Since the rebuild, crime has dropped away to almost nothing, and there’s been a growing demand from people wanting to move in.”

different, attractive and secure house, flat and bungalow designs which could be put together in almost any combination of terraced or semi-detached groups.

Sefa Amesu: “The first move was to discuss the proposed changes with tenancy groups, the local housing office and local councillors. We ensured we had as much contact with local people as possible, especially in the concept and planning stage. The involvement and co-operation of the whole community was vital. We involved local schools. We offered students tours of the site, teaching them about site safety. We held regular meetings with the active tenant participation groups. There was a sense of ownership from the outset.

“The next move was demolition. Some of the buildings not in demand were knocked down. And then reconstruction. We introduced new road layouts aimed at designing out crime. **This was, to my mind, the most significant change. We created a network of through roads, rather than cul-de-sacs, to ensure that criminals could not evade police cars by running through alleyways and escaping down open alleys in deadend streets. Police and engineers also asked for traffic-calming methods to combat joy riders, and for well-designed exterior lighting to reduce fear of crime.”**

The designers ensured all the houses were fitted with top-quality window locks, five-lever

door locks, front and back lighting, toughened glass windows and burglar alarms. Safety chains and spy holes were put in all the front doors so that tenants could check who was calling before they opened the door. Steel gates were erected across alleyways to prevent criminal access to the rear of properties. Designing the security in from the outset has many cost advantages, and avoided the ugliness that so often arises from retro-fitted measures, such as heavy secondary gates and window grills. Security designed into a project at the planning stage can also be discreet.

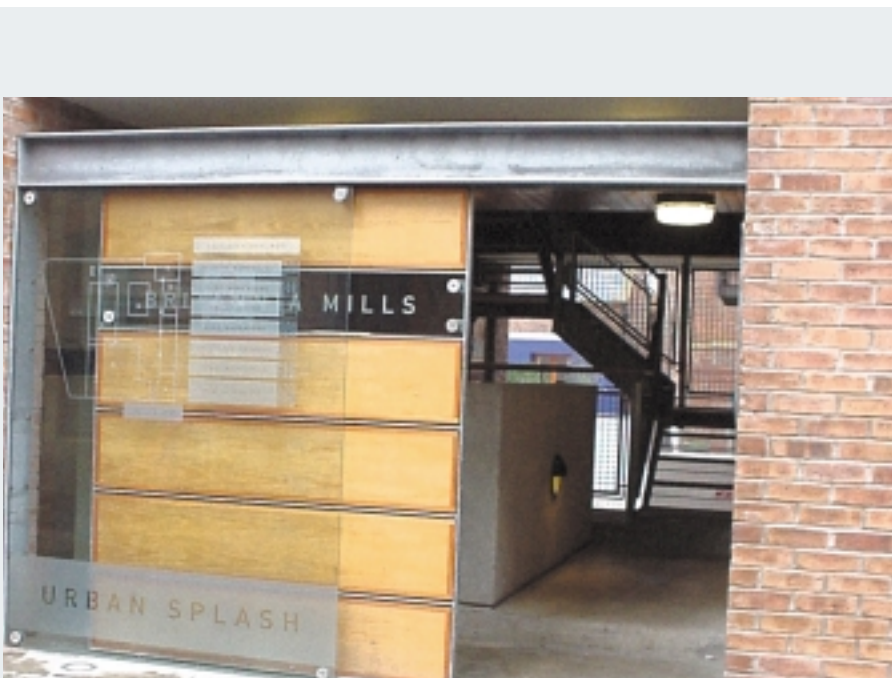
Sefa: “We avoided blind gables – all the semi-detached houses were given windows in the gable walls. Gable walls are usually the side walls of a house, which rise into the triangular end-frames of the roof. They often overlook alleys between properties. We wanted natural surveillance. To do that, we had to reduce the number of blind spots. More windows mean more community surveillance.

“The impact of the changes has been dramatic. Before, the area was crime-ridden and no one wanted to live there. Since the rebuild, crime has dropped away to almost nothing, and there’s been a growing demand from people wanting to move in. Crime is not about the people who live in a place, it’s about the place in which they live. At Alexandra Park, the people haven’t changed – it’s the environment, the accommodation, that has changed. And that has caused the crime rate to fall.”



# DES RES

## HOW HOUSES ON AN INDUSTRIAL ESTATE BECAME HOT PROPERTIES



As the government is pushed one way by the need to find land for new housing, and the other way by the environmental lobby who want to stop the development of greenfield sites, there really is only one way to go – to land designated for industrial use, so-called brownfield.

But who wants to live on an industrial estate? The answer, bizarrely enough, thanks to the work of companies like the award-winning Urban Splash, is: “actually, quite a lot of people”. Which is a bit odd. Industrial estates are often outside city centres, and while that isn’t a problem in itself (for plenty of estate housing is also situated quite far out)

there’s a feeling that houses in such remote, unfrequented places could be a target for criminals, especially at night, after the workforce has gone home.

Craig Owen worked for Urban Splash while they were conceiving and building the Britannia Mills apartment complex in Castlefield, Manchester. **“When we first looked at the site, the signs weren’t good. It was to be the first residential building in what was an area designated for light industry, and the potential for security problems was significant. The area, on the fringe of the city centre, had a high risk of crime. We realised the only way we could**

**persuade people to live here was to make them feel safe. We decided to try and create an oasis in the industrial ‘desert’ around.**

“We wanted to make it secure, but we also wanted to make it aesthetically pleasing. Anyone can build heavy gates and big block walls. This had to feel safe without looking like Stalag 14!”

Urban Splash’s approach to design has always been people-centred: “We have learnt that people don’t treat perimeter doors like their own front doors,” says Craig. “They are likely to leave them open. So when it came to building

→



The lift is transparent, improving the sense of security and visibility

Britannia Mills, we made the access doors into the central courtyard self-closing. A lot of energy went into making them look right.

“Lighting is another vital security factor. The inner courtyard had to be well lit, but we didn’t want it keeping the residents awake at night. So we created lights that shone downwards, away from the buildings, lighting the paths and walkways, not their bedrooms. The lights have been carefully designed, as with everything else in the courtyard. The trees are bare-trunked and the shrubbery is kept low, so it looks good without providing hiding places.”

The car park is also secure. You enter and exit through electric doors operated by a hand-held magnetic fob. The car park is overlooked by apartments and well-lit, which provides an extra sense of security for the residents. Keys are accounted for. If people move away, they are asked to return their fobs.

Inside, some of the apartments feature computer links to CCTV cameras in the car park that enable residents to check on the security of their vehicles. The computer can also operate the curtains and the lights, so residents can appear to be in when, in fact, they are out.



The heavy, plain wooden doors are stylish and yet secure

The system works automatically, using light sensors to determine whether it is day or night.

The heavy, plain wooden doors to the apartments are stylish, yet secure and attractive. The large windows, balconies and access walkways ensure visibility and contribute towards the community spirit, though there are shutters on the ground floor windows to prevent burglary. The lift to the upper floors is transparent, improving the sense of security and visibility.

The focal courtyard backs onto a canal that was used to transport materials to and from the old cotton and saw mills. Its presence as a natural barrier adds to the sense of residential safety. **“We took a novel approach to making the walls around the courtyard,” says Craig. “We’ve all seen rendered breeze block walls along canals, and frankly they are not very pretty. So we created a mesh structure filled with pebbles. It’s low maintenance and looks great. And even if the graffiti kids attack it, you can hide their work by moving the pebbles, taking them out and cleaning them, or replacing them altogether. Pebbles are pretty cheap!**

“There were a few teething problems. The main

electric door was initially key-operated, until we realised that vandals found it amusing to snap things off inside the mechanism. So now we’ve replaced it with an electronic key fob, or, in the case of the courtyard, a swipe card.

“For me, the most impressive part of this development is the courtyard. Many developers might have been tempted to use the space for car parking or further housing. But we wanted this oasis feel, this sense of tranquillity within the city. It’s a secure, private space for all the residents to enjoy.”

Urban Splash has a policy of getting regular feedback from the residents. This enables the company to continually improve lifestyles while collecting data which will mean more effective building in other construction projects. Craig: “Because Britannia Mills looks so good, vandalism hasn’t been an issue. In fact there have been no significant problems there. The feedback from residents has been very positive and it’s an indication of the success of the project that the value of their property has risen so dramatically.”



ORGANISATION KENWOOD	PROJECT D MASK CAR STEREO	BRIEF TO DEVELOP A CAR STEREO UNIT UNLIKELY TO BE STOLEN BY OPPORTUNIST THIEVES	DESIGN SOLUTION A FACE PLATE WITH THE STEREO CONTROLS ON ONE SIDE AND A BLANK FASCIA ON THE OTHER WHICH REVOLVES WHEN THE IGNITION IS TURNED ON	IMPACT EFFECTIVELY DETERS THIEVES AND BECOMES KENWOOD'S BIGGEST SELLING CAR PRODUCT
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The MASK is certainly ingenious. When you turn off the car ignition, the faceplate revolves to a standby position and remains there for a few seconds. At this point, you can easily remove it and pop it in your bag. If you don't do that, then it continues revolving until only a black panel is visible.



the MASK.” The MASK is certainly ingenious. When you turn off the car ignition, the faceplate revolves to a standby position and remains there for a few seconds. At this point, you can easily remove it and pop it in your bag. If you don't do that, then it continues revolving until only a black panel is visible. Then you can get out the car and leave, and it still looks like you’ve taken the faceplate with you.

Ingenious, Mr Bond. But perhaps not clever enough, for a sophisticated thief may learn to recognise the Kenwood black faceplate.

Oliver responds: “Well, there’s more security involved than that. There’s a four-digit security code too. If you punch that in (say, the same code as your credit card pin number) it means a thief can’t use the unit even if he steals it. And of course, he won’t be able to tell easily if he’s looking at the faceplate after it’s been

taken away, or after it has rotated. And frankly, in the vast majority of cases, he’s not going to hang around squinting through the glass trying to work it all out. He’s going to move on. **The Kenwood system offers too many possible obstacles. A thief will go for an easier target every time. Thieves may be gamblers, but the chances of failure are too high with this unit.”**

Not so fast, Mr Bond. This is a complex piece of machinery. It’s bound to go wrong! Someone could get something stuck in the mechanism and burn out the motor, and it'll wear out after a few hundred uses. In under a year, probably. Or it'll freeze up. Or melt! Something’s bound to go wrong.

It turns out it probably won't. First, Kenwood have designed the clutch motor assembly to prevent motor burnout should a foreign object



ORGANISATION KENWOOD	PROJECT D MASK CAR STEREO	BRIEF TO DEVELOP A CAR STEREO UNIT UNLIKELY TO BE STOLEN BY OPPORTUNIST THIEVES	DESIGN SOLUTION A FACE PLATE WITH THE STEREO CONTROLS ON ONE SIDE AND A BLANK FASCIA ON THE OTHER WHICH REVOLVES WHEN THE IGNITION IS TURNED ON	IMPACT EFFECTIVELY DETERS THIEVES AND BECOMES KENWOOD'S BIGGEST SELLING CAR PRODUCT
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## FACE LIFT HOW A CLEVER INNOVATION IS CONNING CAR CRIMINALS







The thief moves through the car park, watching for CCTV. He slips alongside a dark blue Ford Focus and quickly peers in through the driver's window. Damn. They've taken the facing panel off the stereo. He turns around to the car behind him. In the Mercedes next door, he can see the stereo faceplate is still intact. Either the owner's left it in place, or the unit doesn't feature a removable control panel. He pulls the hammer from his inside pocket, and looks around him...

Ten minutes later the owner of the Ford Focus returns to her car. Her feet crunch on broken glass. She turns round and sees the Mercedes'

passenger window is smashed, the stereo gone. She unlocks her own door and climbs in. She slides in the key and turns on the engine. The naked faceplate of her Kenwood stereo revolves like the number plates on James Bond's Aston Martin. Now the stereo controls are all in view. She presses play and drives off to the opening beat of Sade's Smooth Operator (Remix).

Is this the last word in car stereo security? Oliver Williams from Kenwood in Denver, Colorado: "The detachable face was a theft solution, but only works if the face is removed. More often than not people are just too lazy to

remove it – or they just forget. Others never learn how to get the faceplate off." That's just two of the problems with detachable faceplates.

Pioneered by – er – Pioneer, **the original system allows you to press a button, pull the control panel off the front of the stereo unit, and put it in your pocket. The stereo is valueless without a control panel, mainly because without it, it simply doesn't work. It's a good idea. But frankly it's also a bit of a pain. Who wants to carry around their car stereo control panel?** It's hardly a fashion

statement: "Oo, look at my faceplate – isn't it neat?" ("Yeah, right – get a life!"). And it's an inconvenient bit of kit to carry about when your pockets are already stuffed full of mobile phone, wallet and palm PC. And then, of course, the inevitable happens. You leave it in a cab. Or it falls out of your pocket and goes down the toilet. You lose it, in short, and there's little more infuriating and inconvenient than having an expensive car stereo and no means of switching it on.

"So our Japanese designers started working on a better solution," says Oliver. "And that was



<b>ORGANISATION</b> TESCO PLC	<b>PROJECT</b> IMPROVING 'IN STORE' CRIME PREVENTION	<b>BRIEF</b> TO DESIGN AN OPEN AND CONSUMER FRIENDLY SHOPPING ENVIRONMENT THAT DOESN'T APPEAL TO SHOPLIFTERS	<b>DESIGN SOLUTION</b> A RANGE OF DESIGN INTERVENTIONS, FROM LOWER SHELVES TO IMPROVE SURVEILLANCE, TO METAL PLATES IN CAR PARKS AND SERVICE STATIONS WHICH STOP THIEVES MAKING A QUICK GETAWAY	<b>IMPACT</b> A SIGNIFICANT REDUCTION IN CRIME INCLUDING A CUT IN THE NUMBER OF DRIVE-OFFS FROM 500 TO LESS THAN 50 A WEEK
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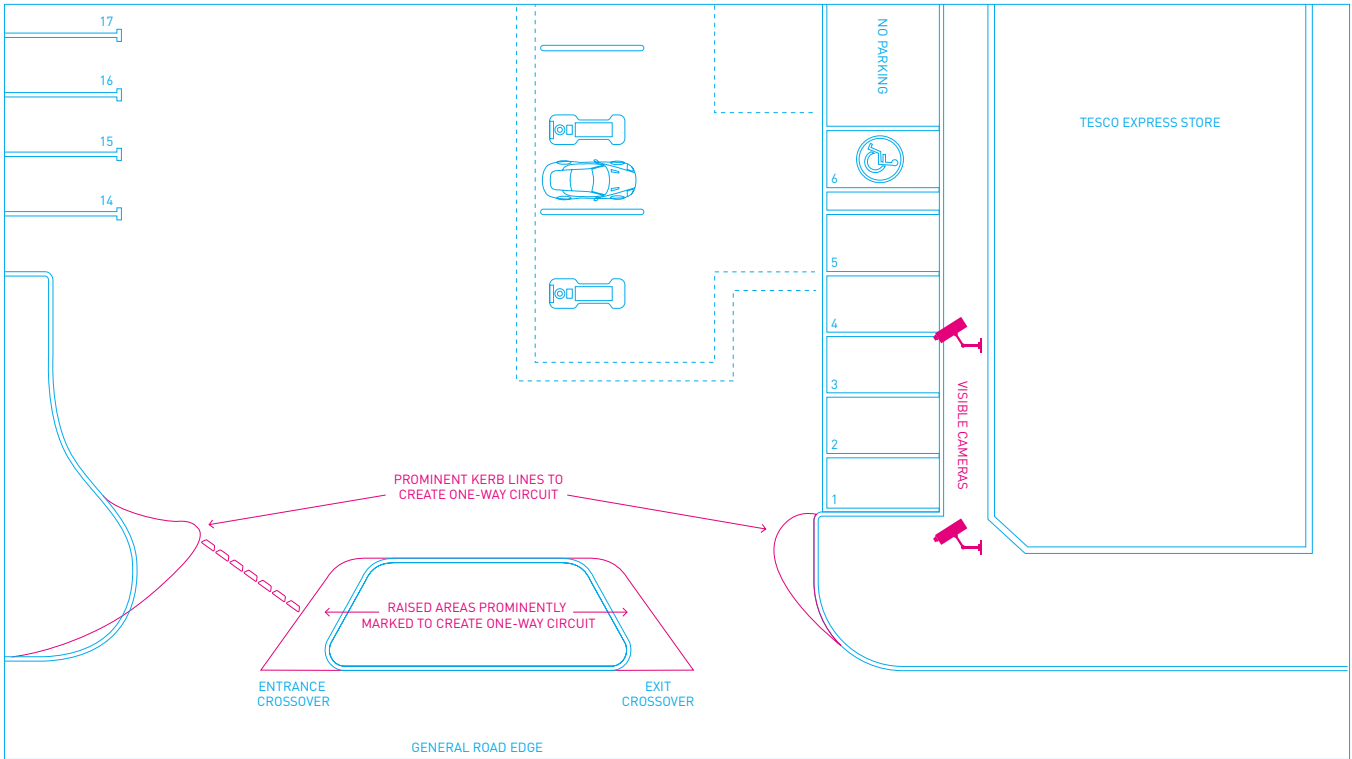
<b>ORGANISATION</b> TESCO PLC	<b>PROJECT</b> IMPROVING 'IN STORE' CRIME PREVENTION	<b>BRIEF</b> TO DESIGN AN OPEN AND CONSUMER FRIENDLY SHOPPING ENVIRONMENT THAT DOESN'T APPEAL TO SHOPLIFTERS	<b>DESIGN SOLUTION</b> A RANGE OF DESIGN INTERVENTIONS, FROM LOWER SHELVES TO IMPROVE SURVEILLANCE, TO METAL PLATES IN CAR PARKS AND SERVICE STATIONS TO STOP THIEVES MAKING A QUICK GETAWAY	<b>IMPACT</b> A SIGNIFICANT REDUCTION IN CRIME INCLUDING A CUT IN THE NUMBER OF DRIVE-OFFS FROM 500 TO LESS THAN 50 A WEEK
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**"Thieves use the store as a through route. It's typical that a practised shoplifter will walk through the store, pick up the stuff he wants to nick, put it in a trolley, walk straight to the fire exit, unload the trolley's contents into a waiting car, and be off."**

# SHOP LIFT

## HOW A MAJOR SUPERMARKET CHAIN USED DESIGN TO CUT STORE CRIME



"I've used the same approach in the car park. First of all, where possible, we block off short cuts through the car park. We make it into a cul-de-sac. We narrow the entrances and exits, creating a sort of chicane, and create a one-way circuit. In one case we've cut drive-offs from 400 a week to under 50. We make the motorists approach the exit at right angles. This is a good safety device. It slows them down and prevents quick getaways. And we have one-way drive-over plates – the sort of device that will damage your tyres if you go the wrong way. We have CCTV and electronic help points clearly visible across the car park. It's clear from the road outside to potential criminals that it's hard to get away with crime in here, and hard to get out at high speed.

**"Stand outside the average car park and watch people's behaviour. You can see the speech bubbles: 'Where on earth did I leave the car?!' The result is you get a lot of people wandering about aimlessly. And that helps car criminals because they too can look like they're wandering about aimlessly, looking for a car. So we put up signs and landmarks, icons in the environment, so people can find their way back. We make sure that the parking bays are laid out neat and square, not at chaotic angles. These changes have had a significant effect.**

"The job is so big just at Tesco's that it's impossible for me to do it all. So I'm training

the designers, trying to convert them to this way of thinking, that the best way to design out crime is to reduce the opportunity and desire to offend. That requires an understanding of the current models of criminal behaviour. I think designing out crime should be part of the HE curriculum for architects and designers. The fundamental message is this: 'If people think your store and car park is safe and crime-free, they'll use it more.' So the long-term benefits should ultimately outweigh the cost of the investment."





Criminals ask three basic questions: 'Can I be seen? If I am seen, will I be noticed? If I am seen and noticed, will anybody do anything about it?'



Lower shelving means fewer blind spots for CCTV and more exposure for shoplifters



Supermarkets are in a constant battle against shoplifting. The British Retail Consortium Retail Crime Survey 1999 showed the cost of crime losses by UK retailers from customer theft, staff theft and criminal damage was a staggering £1.3 billion. That's an increase of some 28% on the previous year and this figure does not include other criminal activities, such as car theft and violence in retail car parks. It has proved a difficult business to design an open and consumer-friendly environment that doesn't also double as a shoplifting friendly environment. But one man, Greg Lawrence, the former Deputy Chair of the Designing Out Crime Association (DOCA) and now Tesco's Environmental Criminologist, has been on a mission to change the thinking about supermarket layout.

"I'm an ex-policeman. I went into mainstream police to ride in fast cars with sirens and blue flashing lights – all the exciting things in life. I did a course on crime prevention and soon after became a crime prevention officer and in those days crime prevention was about locks and bolts. **The theory was, if you could persuade people to use lots of locks and bolts, crime would drop. Very naïve. But I**

**also noticed, because I wasn't completely stupid, that my job didn't make a lot of sense. I worked out that if I visited all the houses in my part of Worcestershire to help them with the locks and bolts philosophy, I'd be visiting houses into the middle of this century and still wouldn't have got round them all.** What really changed my approach was a project about crime on factory estates. Crime there was going through the roof. So we had a series of meetings and I had a go at them. Locks and bolts I said. And, much as expected, after the meetings, crime stopped dead. 'Well,' I thought. 'How clever of me!'

"But my boss wasn't so easily impressed. He told me not to take the drop at face value. So I went to check what had happened. And what had happened was the 'halo effect'. People had become more vigilant, and that, in itself, had had an impact. The local council had also played a vital role that at first seemed completely unconnected. There was a route between a housing estate and a school, and the short cut was through this factory estate and along the back of the buildings. The route

was lined with high bushes. I noticed the council had trimmed them right back. Somehow, I felt, the fact that the hedges were smaller was an important issue. And then I read some Oscar Newman, the American guru of criminology. He identifies three key issues in crime. To commit a crime it's really useful if you have anonymity (ie, you don't stand out because you're expected to be there), freedom from surveillance and an alternative escape route. Criminals ask three basic questions: 'Can I be seen? If I am seen, will I be noticed? If I am seen and noticed, will anybody do anything about it?' Basically, cutting the hedges down made potential criminals uncomfortable.

"From then on, I couldn't get enough of it, and I started reading books on the subject for fun! I learnt that names already existed for what the local authority had done when they trimmed the bushes. I could make new sense of architectural terminology like 'movement generators' and 'desire lines', and in very simple terms, I discovered that it was all about making criminals visible and unsafe, while at the same time making law-abiding people feel secure. Back at the force, I became a bit of an

authority on the subject. Then, approaching retirement, I was headhunted by Tesco. The first principle I began to apply was the tendency for shoplifters to go for CRAVED products. **If a product is Concealable, Removable, Available, Valuable, Enjoyable and Disposable, it's a target. And out of all these, enjoyable is the most important. DVDs are good examples. Another one is Southern Comfort. Southern Comfort gets nicked far more often than single malt whisky. Most young criminals know about Southern Comfort. They know their mates will like it. They won't be so sure about Laophraig.** So it follows that some products need more protection than others. So there's not much need for heavy security for a tin of beans. You can put them near the exit or the entrance. But it would be unwise to do so with DVDs or Southern Comfort. If you do, make sure CCTV is trained on them.

"I'm also recommending a range of other changes, such as wider aisles and lower shelves. Lower shelving works like lower hedgerows. It means fewer blind spots for CCTV and more

exposure for the shoplifters. But obviously the worry is that less display space won't be balanced financially by the security benefits. I've discovered that the most effective design set for preventing in-store crime is the cul-de-sac. There's an assumption that shoppers don't want cul-de-sacs – they want to be able to flow round a supermarket. But the fact is, cul-de-sacs are good for the customer and bad for the criminal. If a criminal has only got one entrance and exit, he or she feels unsafe. And, deep down, law-abiding customers feel safer if they aren't exposed by a variety of open entrances. That feeling is worth a lot.

"Thieves use the store as a through route. It's typical that a practised shoplifter will walk through the store, pick up the stuff he wants to nick, put it in a trolley, walk straight to the fire exit, unload the trolley's contents into a waiting car, and be off. We had one particular store where this was becoming a serious problem. So we introduced a barrier outside the store. Seconds are precious in a 'push out' crime like this. By building the barrier, we created a psychological cul-de-sac. It stopped the crime dead in this particular store.



<b>ORGANISATION</b> SAFER MERSEYSIDE PARTNERSHIP	<b>PROJECT</b> ALLEY GATES	<b>BRIEF</b> TO FIND A WAY OF REDUCING THE HIGH LEVELS OF CRIME EXPERIENCED BY PEOPLE LIVING IN TERRACED HOUSES IN BUILT UP AREAS	<b>DESIGN SOLUTION</b> SPECIAL GATES DEVELOPED TO BLOCK OFF THE ALLEYS AT THE BACK OF HOUSES	<b>IMPACT</b> A 60% DROP IN CRIME AND A GROWTH IN COMMUNITY SPIRIT
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<b>ORGANISATION</b> SAFER MERSEYSIDE PARTNERSHIP	<b>PROJECT</b> ALLEY GATES	<b>BRIEF</b> TO FIND A WAY OF REDUCING THE HIGH LEVELS OF CRIME EXPERIENCED BY PEOPLE LIVING IN TERRACED HOUSES IN BUILT UP AREAS	<b>DESIGN SOLUTION</b> SPECIAL GATES DEVELOPED TO BLOCK OFF THE ALLEYS AT THE BACK OF HOUSES	<b>IMPACT</b> A 60% DROP IN CRIME AND A GROWTH IN COMMUNITY SPIRIT
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“I often give them the example of Dingle Grove. People wouldn't leave their houses for fear of burglary. It meant they didn’t even go out for job interviews. Since alleygating you can’t get hold of them. They’re all out working!”

arrange, change of use issues... Then, when we’ve resolved that lot and actually cleared an alley of all the vegetation, mattresses and old bicycles, and when we’ve finally put the gates up, suddenly weeding becomes an issue. Who’s going to make sure the alley stays clean?

“And then there’s cats. They can’t climb the gates any more than humans can, so should there be a cat flap? And what about the police – do they get master keys? Problems range from how does the window cleaner get in to access by police armed response teams.”

Day by day Martin is becoming the UK’s alleygating king. He is the one who has found the best way round the mounting mountain of issues. But why go through all this?

“Because the results are so spectacular. **In most areas now we see an almost immediate 60% drop in crimes.** Bin bag fires suddenly become a rarity. We’re fitting ten gates a day seven days a week. We’ve done 600 so far [August 2001] and we’ve got an agreement to go for another 2,000 gates on Merseyside. The demand from local residents is enormous. Frankly, we’ve been overwhelmed.”

But surely the biggest problem is allocating the keyholders? “Ah,” says Martin (he’s been waiting for this one), “the key is the key! Management of the key works to bring the communities together. Deciding who holds the key means everybody in the community becomes involved because they have a clear interest to be involved. I mean, they want to get to their own back yards. So they need the key. I thought the key would be a problem, but it’s a facilitator. The key issue creates a community hub. Residents create a Key Allocation Bureau, and Key Monitors are assigned for bin days, window cleaners, etc. In fact in many cases we have successfully

assigned people arrested in the alleys, such as drug abusers, to help in the building and installation of the gates themselves.

“Funding comes through a combination of government grants such as the Home Office Burglary Reduction Fund, EU grants and the like. And now we’re getting some famous customers. **Liverpool FC wants a set – in fact we’re involved in our first court case to try to secure the right to obstruct an alley near Anfield so we can put up gates that will stop Away fans urinating on their route from the station to the turnstile queuing area.”**

So what are the drawbacks? “There are concerns that crime is moved on to other areas, and we’re studying that. At the moment the indication is that crime moves on, peaks and then tails off. A lot of acquisitive crime is down to opportunity. If a young burglar has an easy target, it becomes a temptation. Alleys can help provide an easy target. But if you take the opportunity away, then the impulse to steal, or vandalise or break the law in some other way, disappears too.

“Also the gates are subject to attack by people who think it would be great to disable the lock mechanism with Superglue. But now we’ve made the lock Superglue proof, by the simple but brilliantly effective expedient of coating them in Vaseline at manufacture and ensuring they stay greased up.

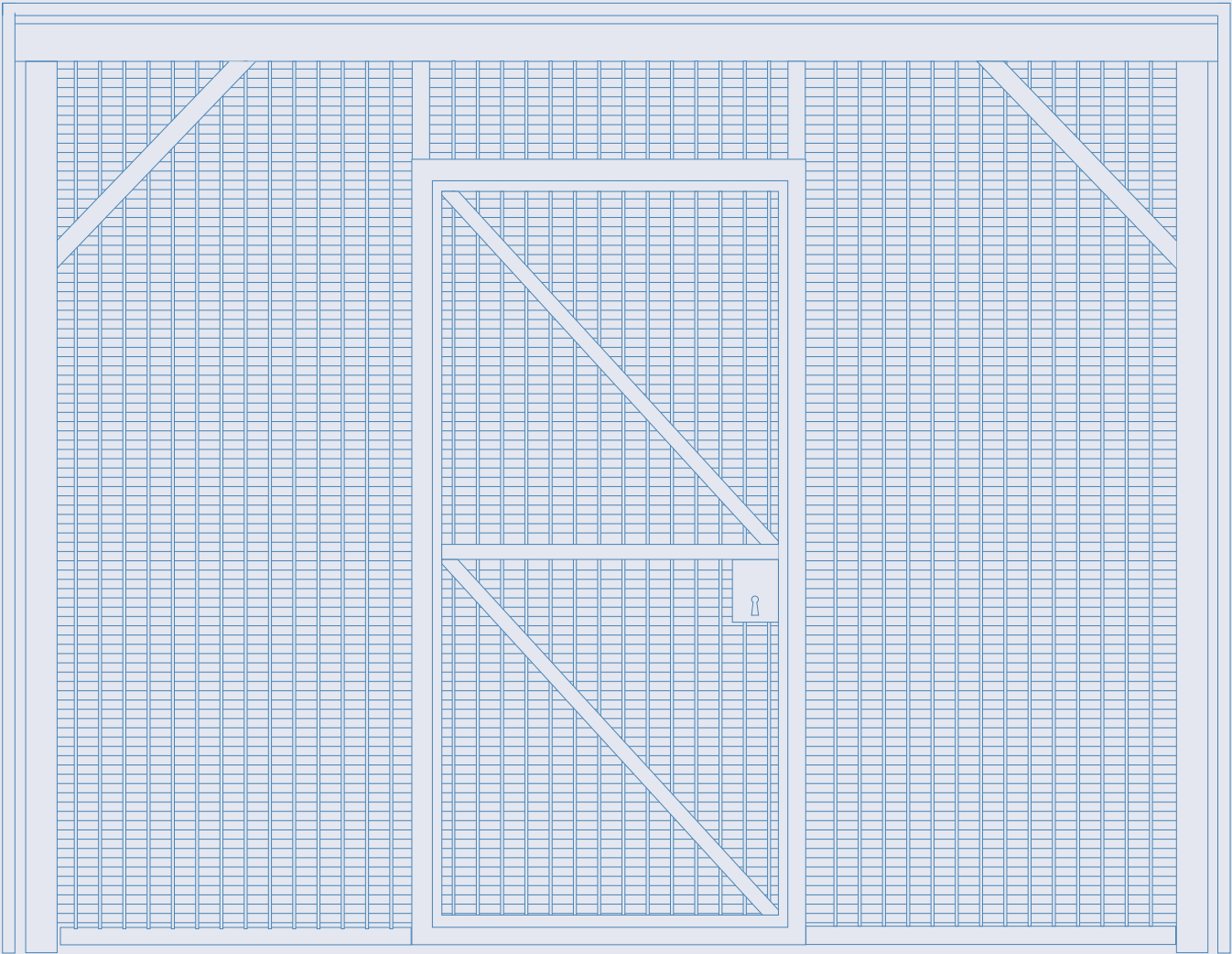
“At the moment the gates cost at least £800 each. That’s not much to pay, really. The cost of a single burglary can often be more than that, and the saving in police time and stress to the residents makes alleygating a really inexpensive option.

“The gates are flat-panelled, providing no footholds, and there’s a roller bar on the top

coated with anti-vandal paint on which it’s impossible to get a grip. They are steel gates, so they'll never look beautiful, but they do look trim and neat. Martin Newton: **“Each gate has 72 parts and takes longer to build than a Ford car! So we’ve been chatting to Ford Jaguar and we’re about to go into partnership! They’re going to source the steel for us, and the Jaguar design engineers are going to do a task complexity reduction exercise using Ford worldwide components. For example, they might use Mondeo grill parts to create the galvanised mesh we use in the gate to provide visibility down the alley.”**

Alex Grant lives in terraced accommodation where crime is high. He is fighting to get alleygates brought into his area. But in the meantime, he’s been working as the Community Safety Manager of the alleygating project for Local Solutions (formerly MCVS, Merseyside Council Voluntary Services). He’s been amazed by the scheme’s impact. “My job is to persuade residents that alleygating is a good idea. If we don't get 94% agreement, it won't happen, for legal reasons. But it’s not a tough call. I often give them the example of Dingle Grove. People wouldn't leave their houses for fear of burglary. It meant they didn't even go out for job interviews. Since alleygating you can't get hold of them. They're all out working! In some areas of Liverpool it was really hard to sell your property if it was a two-up two-down, because of the crime problem associated with houses like these. Now, the same property is shifting because the residents feel more secure. Where before the back alley might have been a rat run, a dump and a criminal's haunt, now it features hanging flower baskets. The difference it’s made to people’s lives has been enormous.”

## RIGHT UP YOUR ALLEY HOW LOCAL COMMUNITIES ARE SHUTTING OUT CRIME







Back alleys in terraced housing are a mixed blessing. They were designed to provide ‘easy in, easy out’ for the owners and tenants. But what wasn’t anticipated, of course, was how those alleys would become dumping grounds for waste and rubbish, and, far worse, breeding grounds for an alarming range of crime. ‘Easy in, easy out’ works for burglars, too.

These alleys have gradually produced some alarming statistics. Such as the fact that 70% of burglaries in a major conurbation area are in terraced properties – and 70% of those are through the rear entry alley. High-walled, poorly lit, and strewn with detritus, the alleys are a breeding ground for crime.

Liverpool, it turns out, has been suffering particularly badly from the alley disease. That is, until, in 1993, Martin Newton, now the Head of the Safer Merseyside Partnership, was contacted by a residents’ association desperate for help. It was a happy coincidence; he’d just seen a report on the successful pioneering of ‘alleygating’ by Calvin Beckford in Camden, London. He was able to offer the residents a design solution that had the potential to cure all their problems in one bold move.

Alleygating is simple in recipe, but more complex in the serving up. **Take one alley (or jigger as it’s known in Liverpool). Clean out all the rubbish. Build an unclimbable**

**gate at both ends of it which is rugged yet transparent and attractively designed. Supply residents with the keys. Result? Burglars, drug abusers, muggers, fly-tippers, arsonists and prostitutes gradually move away. Fear of crime reduces. Stress levels fall. Apathy withers. Pride in the local environment rises. Everyone’s quality of life improves. Excellent.**

Except getting there isn’t so easy. Martin Newton: “There are rights of access issues, decisions to be made about whether the gate is blocking a highway, emergency access issues, laws on lighting to consider, utility access to



ORGANISATION	PROJECT	BRIEF	DESIGN SOLUTION	IMPACT
RPC CONTAINERS	DULUX PAINT CANS	TO DESIGN A SPECIAL PAINT CONTAINER THAT WOULD STOP PEOPLE DILUTING DULUX PAINT OR REPLACING IT WITH A CHEAPER BRAND BEFORE 'SELLING IT ON'	AN INNOVATIVE TYPE OF TAMPER EVIDENT PACKAGING	CRIME WAVE STOPPED IN ITS TRACKS

“The idea was to introduce a flash of thin plastic that would cover the screwdriver nooks. To get the screwdriver in, you had to break them off. Once they were broken off, it was clear that the container had been opened.”

Of course, this particular ‘neat trick’ had repercussions. Such as, if you happened to want to paint your front room, and you’d lugged home a couple of pots of Dulux’s best magnolia, only to discover they were full of faintly-coloured water, chances are you might be a bit put out. You might begin to think bad things about Dulux. You might think: “Hey, pretty dog on the TV, but their standards are falling and they’re making really useless paint.” ICI began to get a stream of complaints. And, vigilant guardians of one of their top brands, they decided to do something about it.

‘Doing something about it’ consisted of passing the complaints straight on to their paint container suppliers. And so it fell to Glyn Staines, the Technical and Development Manager of RPC Containers, to come up with a solution. “Our lid is designed to be opened with a screwdriver. There are three nooks in the lid cut out specially so you can slip a screwdriver in and lever up the plastic lid. Great design, but if you’re careful, you can get the lid off and on again without showing it’s been opened.

“We had an internal discussion about what to do, and ideas ranged from a total redesign of the packaging to ideas on what we might do with the current lid. We thought of various things; special security bands, sealing the whole container in plastic – all barriers to easy opening, which, of course, the average shopper won’t be too keen on. And then someone came up with a totally different idea. Don’t try to stop people getting into the product. Let them in, but show everyone that they’ve been there. Show the world the container has been tampered with.And from that came ‘plastic tabs’.

“The idea was to introduce a flash of thin plastic that would cover the screwdriver nooks. To get the screwdriver in, you had to break them off. Once they were broken off, it was clear that the container had been opened. Now normally, such a redesign on an injection moulding tool would have been horribly expensive. But we worked out an easy way to do it. The male half of the mould contains the projection that makes the nook. By filing away its tip, we could allow a thin film of plastic to

flow in during manufacture. When the lid emerged from the mould, the nook would be covered in a thin plastic tab that would just snap off when pressed with a screwdriver.” It was a very slight modification. Ingenious and inexpensive, like most good ideas.

“We thought it might just be a temporary solution, but it turned out to be the perfect answer. Now we see the idea being used throughout the packaging industry. Tamper-evident containers are de rigueur in most industries.” You can see why. Apart from the serious dangers involved, especially in food products, there is a serious risk of damage to public perceptions of a brand if it becomes apparent that the company cannot protect the contents of its product.


It’s been five years since ICI last reported a problem with their cans. When they raised the issue they could not have expected such a comprehensive solution to have been delivered so fast. But thanks to the efforts of the design team at RPC Containers, the Great Birmingham Paint Scam was at an end.

ORGANISATION	PROJECT	BRIEF	DESIGN SOLUTION	IMPACT
RPC CONTAINERS	DULUX PAINT CANS	TO DESIGN A SPECIAL PAINT CONTAINER THAT WOULD STOP PEOPLE DILUTING DULUX PAINT OR REPLACING IT WITH A CHEAPER BRAND BEFORE 'SELLING IT ON'	AN INNOVATIVE TYPE OF TAMPER EVIDENT PACKAGING	CRIME WAVE STOPPED IN ITS TRACKS

## PAINT TAIT HOW DESIGNERS FOILED THE GREAT BIRMINGHAM PAINT SCAM







Crime is not a glamorous affair. More often than not it's just petty and irritating. Not long ago there was a spate of such crime in the Birmingham area. It was happening at the big DIY 'sheds'. It seems a group of people had cottoned on to a money-saving trick. Why buy expensive Dulux paint when you can get it for free? All you had to do, they discovered (and then enthusiastically told an ever-widening group), was to go to your nearest 'shed', buy the paint of your choice, open it carefully, empty it into another container, fill the tin up again with water so it would feel full, close the lid, and take it back to the 'shed', saying you'd changed your mind, you hadn't opened the container, so could you have your money back please? "No problem, sir. Glad to be of service, sir." Bingo. Free paint. Ha, ha, ha.



<b>ORGANISATION</b> BIG ISSUE IN THE NORTH	<b>PROJECT</b> OFFICE HQ	<b>BRIEF</b> TO CREATE AN ACCESSIBLE PROFESSIONAL ENVIRONMENT WHICH BIG ISSUE VENDORS WOULD RESPECT	<b>DESIGN SOLUTION</b> BIG IDEAS LIKE A CENTRAL ATRIUM TO MAKE THE BUILDING FEEL OPEN AND TRANSPARENT AND LOTS OF SMALL IDEAS SUCH AS BLUE LIGHTING IN THE TOILETS TO DISCOURAGE DRUG ABUSE	<b>IMPACT</b> PEOPLE FEEL A SENSE OF OWNERSHIP AND RESPONSIBILITY OF THE BUILDING AND VANDALISM AND ABUSE OCCURS RARELY
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# LITTLE TROUBLE AT BIG ISSUE

## HOW A CAREFULLY DESIGNED BUILDING CREATED RESPECT AND CUT CRIME



How do you create a space for society's outsiders? How do you make a comfortable room for people who, in some cases, society has rejected, or who have, for one reason or another, rejected society itself? It's argued that it is the fundamental duty of a civilised society to provide the best possible quality of life it can afford for all its members. But the rub lies in the word 'afford' – there are huge issues over who should pay for it.

Huge issues. Some say it's the biggest issue. How can you help such people afford to help themselves? Gordon Roddick of the Body Shop first saw the beginnings of an answer on the streets of New York, where homeless people were selling Street News to help support themselves. He flew home, teamed up with John Bird, and created the Big Issue, a

magazine about the big issues of the day, sold by homeless vendors so they could use the money to survive. But the truth is the vendors need more than cash. They need a place to go, in the warm, out of the rain, where they can mix and, perhaps, see a way back to taking part in society.

The Big Issue in the North was started in December 1992, by Anne McNamara and her business partner Ruth Turner as a North West supplement of the London-based magazine. They bought their current headquarters in Manchester in 1998. But why go to the huge expense of refurbishing a building? Why not just rent?

Anne McNamara: "I was never very happy about renting. It seemed like throwing away



money, and, frankly, we couldn't be sure of security of tenure. The truth is, we don't make a popular tenant. We have hundreds of homeless people coming in and out all day. **We have cash and computers on the premises, and our old HQ in Manchester was regularly broken into. Graffiti was one problem. Vandalism another. You had to be a damned fine landlord to put up with us!** And anyway, we were never able to find rented accommodation that was entirely suitable for our purpose.

"We wanted to create a really effective environment to help homeless people to move on. We wanted a building with a lot of circulation space, where people could mingle and converse. We wanted only one entrance and exit, so that the vendors, the staff and the →

<b>ORGANISATION</b> BIG ISSUE IN THE NORTH	<b>PROJECT</b> OFFICE HQ	<b>BRIEF</b> TO CREATE AN ACCESSIBLE PROFESSIONAL ENVIRONMENT WHICH BIG ISSUE VENDORS WOULD RESPECT	<b>DESIGN SOLUTION</b> BIG IDEAS LIKE A CENTRAL ATRIUM TO MAKE THE BUILDING FEEL OPEN AND TRANSPARENT AND LOTS OF SMALL IDEAS SUCH AS BLUE LIGHTING IN THE TOILETS TO DISCOURAGE DRUG ABUSE	<b>IMPACT</b> PEOPLE FEEL A SENSE OF OWNERSHIP AND RESPONSIBILITY OF THE BUILDING AND VANDALISM AND ABUSE OCCURS RARELY
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**"We still have problems, of course. Drug abuse in the toilets is one of the main ones. We've taken away bins and anything that makes it easy to stash or dump syringes, needles etc. And we illuminate the cubicles with a blue light, which makes it difficult for needle users to find a vein."**



visitors – whether you were Prince Charles or a sex worker – would all come in the same door and hang around the same place. And we also wanted room for an editorial office and administration.

"The new building is so much better!" says Anne. "We've provided showers, toilets and a launderette, a health suite to do mainstream and alternative health, a training room, an IT suite, and a room for activities like drumming workshops.

**"We've created a fantastic feeling of transparency and openness by cutting a massive hole right through the heart of the building from the roof to the ground floor. It's created a kind of atrium which lets light flood down through the reception area, and allows everyone to see the innards of the building, while simultaneously allowing us to see what's going on.** It's a two-way communication between our staff and our vendors. The openness of our building reflects the fact that we trust our vendors to treat their environment with respect. Our vendors can see how we work, and we can see what they're doing.

"We don't have vandalism inside the building. The open design has been a huge factor in this. We spend a lot of money on cleaning, keeping it looking nice. And, all part of the

same ideology, it's important that our staff share the same attitude to their working environment. We encourage them to work according to our 'CIRCL' values of Creativity, Impact, Respect, Courage and Love. The building reflects those values too.

"Cost was the big battle. Reducing the floor space offered to improve transparency and enhance security, but it would also mean less room to sell magazines and gain revenue. So we struck a balance. The directors were keen that cost should not be pursued to the detriment of upholding the organisation's values and ethos.

"We still have problems, of course. Drug abuse in the toilets is one of the main ones. We've taken away bins and anything that makes it easy to stash or dump syringes, needles etc. And we illuminate the cubicles with a blue light, which makes it difficult for needle users to find a vein. The toilets are checked every 20 minutes and they are closed down if we find drugs in them. We ask for respect from our vendors and most of them give respect. But if someone continues to do drugs in the loos, for example, we'll put up a notice: 'Toilet closed because Jamie was caught scoring in them, again.' Then 'Jamie' comes under peer pressure to behave himself.

"Sometimes you suffer for your principles. We have a 120-foot glass frontage. It doesn't have

shutters, unlike most of the surrounding properties. Transparency is so important to us. It's impossible to ramraid – there's an effective moat around the building. But we've still had to foot the bill for £10,000 in damage to the windows by drunks.

**"There've been a few mistakes we're looking to rectify. The lighting levels, for example, are too low for some of the CCTV cameras. But in general it's been a great success. We have, in short, cut down on the crime in our HQ and yet made it a really welcoming place. You don't usually associate welcome with security!**

"The idea was to make people on the street feel wanted, and to feel like they had somewhere they could go. I didn't want to create another rundown charity organisation housed in some corridor building peopled by be-cardiganed, non-smoking do-gooders! We wanted a different feel, something more professional, something light and airy. Someone said it looked like an ad agency! Well, that's fine by me. The building is about welcome and freedom. It's not just pretty colours. It's about honesty and at least some freedom and respect. It's about the fact that the vendors can use a third of the building without anyone stopping them. It's about being as trusting as possible, and encouraging responsibility for oneself."



<b>ORGANISATION</b> SCOTTISH & NEWCASTLE BREWRIES	<b>PROJECT</b> WENDOVER PUBLIC HOUSE	<b>BRIEF</b> TO HELP ELIMINATE VIOLENCE AND DRUG DEALING IN A LOCAL PUB BY CHANGING THE PHYSICAL ENVI- RONMENT	<b>DESIGN SOLUTION</b> A RANGE OF SMALL DESIGN CHANGES FROM MOVING THE TOILETS AWAY FROM THE PUB ENTRANCE TO INSTALLING BET- TER INTERIOR AND EXTERIOR LIGHTING	<b>IMPACT</b> NOW A REAL COMMU- NITY PUB AND ONE OF THE BEST PERFORM- ING OUTLETS IN THE SCOTTISH & NEWCASTLE BREWERY CHAIN
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# FROM DODGY PUB TO SOCIAL HUB

## HOW ONE OF BRITAIN'S WORST LOCALS BECAME ONE OF THE BEST

What's in a name? How could it be that a pub called the Pear Tree could be one of the worst pubs in the country, and a pub called the Wendover could become one of the best, when they were, in fact, the same pubs under different names? The answer? An effective landlord coupled with effective design.

The Pear Tree pub in Wythenshawe, Manchester, was the sort of place you wouldn't want to take your mother. Local resident John Beasley: "For 25 years the Pear Tree was a

great pub, until it all went, well, pear-shaped. It was infested with low-life. **Anyone who had anything to sell, anything bent or knocked off, came to the Pear Tree. The druggies would all sit outside, drinking their supermarket beer, and cars would be pulling up and driving off all day long. It became a dangerous place to be.** There was one shooting and several knifings as rivals battled to control the drug supply. Eventually the community started making a fuss and the pub was closed down. And then something odd

happened. They asked me and my wife Aileen to run it. The idea was that the Pear Tree was going to be bulldozed and we were going to start from scratch. A complete rebuild."

The redesign was directed by Greater Manchester Police's Crime Reduction Advisor DC Roger Burton, who oversaw the project using Crime Prevention Through Environmental Design (CPTED) principles. Apart from the name change, which was thought essential to help dispel all association with its crime-laden →

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**"I can stand at any point in the pub and see everybody and everywhere, from the pool table to the toilet door. That makes my job much easier."**

past, the biggest change in the pub took place in the main bar. Out went the nooks and cran- nies of the traditional English pub. In came an L-shaped open-plan layout with comprehensive (but discreet) CCTV coverage.

"I can stand at any point in the pub and see everybody and everywhere, from the pool table to the toilet door," says John Beasley. "That makes my job much easier. We've got 15 cam- eras on 24-hour record. State of the art. You can look at the tape and see what time it is on somebody's watch. Puts potential drug dealers right off."

Roger Burton also put strong emphasis on good exterior lighting, increasing the illumina- tion in the car park to discourage car thieves. This helped dissipate the drug dealing commu- nity that had built up around the pub. The toi- lets were repositioned away from the main entrance. This was because drug dealers were in the habit of making their contacts on the street and then using the toilets for privacy for sampling the drugs and dividing up the 'gear'. "Toilets near the door provide an 'easy-in, easy- out'," says the landlord. Low-lying shrubbery was planted around the pub, making it look more welcoming without providing hiding places. As Roger Burton pointed out: "These

design decisions were simple gestures, based on my experience of securing buildings, but taken in their totality they were extremely effective."

John Beasley: "I had a lot of threats when I opened up under the new name: 'We're going to burn you down! We're coming mob-handed! We're gonna tear the cameras off the wall!' I'd like to see them try – mostly the cameras are just pinpricks in the paint. That way the customers aren't made uncomfortable by them.

"And I introduced a few security measures of my own. John, my doorman, for example." John uses various tricks of the trade to support the redesign. "I used to work in a serviceman's club in Sale, and the rule there was 'no hats'. So I've got the same rule in my pub. Why? Because dealers keep drugs in the linings of their baseball caps. And I banned scruffs and drunks. That is, drunks that came in drunk. Now it's a couples' pub. A community pub.

"I've trained the staff to watch out for trouble. I say: 'Listen for the noise – and then the quiet. That's the lull before the storm. The customers sense trouble and it all goes quiet.' Since the redesign we've had hardly any incidents here. Recently some bloke took exception to the way

some other bloke was chatting his wife up. So I threw them all out. But they came back a few days later. No hard feelings. What I do every night is I visit every table. I make a point of talking to everybody. I can say: 'It's getting a bit loud, lads.' And they say: 'OK John', and quieten down.

**"It's a genuine community pub now. We're building a beer garden and a play area for kids. But we're making it secure. The play area will only be accessible from the pub, so strangers can't get to them from off the street. We even have morris dancing here! If that ain't a sign that things have changed, I don't know what is."**

The Pear Tree was one of the worst performing public houses in the Scottish and Newcastle brewery chain. The Wendover is one of their best. It was the first pub to be awarded 'Secured By Design' status, and that had an immediate effect on the clientele number and its profitability. "People come because they know it is safe," says John Beasley. It tells the lesson, plain and simple, that the right design, coupled with the right people (preferably from the local community) can improve lives and bring profit.





ORGANISATION  
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PROJECT  
HIGH-TECH APART-  
MENTS

BRIEF  
TO DESIGN A LUXURY  
HIGH-RISE RESIDEN-  
TIAL DEVELOPMENT  
PROTECTED FROM  
BURGLARS, MUGGERS  
AND VANDALS

DESIGN SOLUTION  
UTILISE THE LATEST  
TECHNOLOGY FROM  
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RATES AND RISING  
PROPERTY PRICES

Design  
Council

# HI-TECH HI-RISE

## HOW THE FLATS OF THE FUTURE WILL FIGHT THE CRIMES OF TODAY

There's one major problem with high-rise apartments. The world and his wife can wander the corridors and not look out of place, because no one knows if they should be there or not. And that is the perfect environment for criminals. It's easy for them to look like they're just visiting. So how do you secure a block of residential apartments while simultaneously allowing easy access to residents and their guests?

In 1990, the Hyundai Construction Company in Korea set out to develop an apartment block designed to prevent burglaries and other crime associated with unauthorised access, for example, muggings, vandalism and graffiti.

**They drew on research by the Korean Institute of Criminology, which showed that large, tall buildings suffer from a high incidence of crime, especially if they lack a dominant central space, a focal access area. They noted that complexes designed on many different levels, and featuring corridors that don't give residents or visitors a clear line of vision, increase both the fear of crime and its incidence level.** The implications were clear: change the building's structure, design out the shadows and corners where trouble might lurk, and crime rates will drop and fear of crime will dissipate.

First, Hyundai set about analysing city and residential crime statistics and then gathered data to identify the link between the spatial structure of buildings and crime within them. The aim was to 'design out' vulnerable areas, to prevent unauthorised entry, and to develop an integrated security system using electronic and physical barriers.

A number of important action points emerged from the research. Firstly, it was clear that reception areas should be central, as close as possible to all parts of the building, and that these areas should provide clear navigation aids, showing visitors and residents how the

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**The introduction of such a system has enabled Hyundai to become a leading enterprise in the field. The company has raised the price of its apartments, which have continued to increase in value. The Hyundai Apartments are undoubtedly the buildings of the future.**

building should be used. Secondly, the parking area should be as close as possible to the main entrance. Thirdly, the scale of the complex should be more human. Large complexes are easier for criminals to work in. And fourthly, new window and door systems should be devised to prevent unauthorised entry.

Hyundai then initiated co-operation between a group of partners. **It was key to the success of this project that the construction, telecommunication and equipment manufacturing companies all worked hand in hand to achieve the same objective.**

There are many personal security systems the Koreans could have chosen to militate against unauthorised entry – key systems, swipe card systems, pin number systems, even iris or vein recognition systems. But in the end, for reasons both financial and operational, they chose electronic fingerprint identification. This device requires all residents to record their fingerprints on a computer. Then, when they come to enter the building, they put their fingers on the sensor plate at the door. The computer reads them and matches it against those in the database.

Door designer Professor Dae-Woo Lee of Seo-il University explains the teething problems: "We

had problems with frequent damage done to the fingerprint reader because the device is exposed to the exterior. To resolve it, we borrowed from the principle of a camera shutter and applied it in designing the actual fingerprint reader inside the door. In order to access the reader, one must input a PIN number. Then, the fingerprint reader slides out. We've innovated the design and the mechanism to carry out such a process."

That's good for residents. But what about visitors? **The fact that visitors must be allowed into an apartment is nearly always the weakest point of any security system. So Hyundai installed an Access Monitoring system. Residents monitor entry of visitors through the entrances using the home automation system. This is a computer screen set in the wall connected to the CCTV system at the entrance. The resident can actually see who is at the door, and can also take telephone and text messages on screen.**

But what if you don't know your visitor? Burglars often disguise themselves as electricity, water or gas meter readers and persuade residents to let them in. So Hyundai came up with a meter-reading system which automatically monitors the resident's energy use and

which could be read remotely by the utility companies. This system offered an unexpected advantage. Because the meter-readings are also displayed inside the property on the main computer screen, it made it far easier for the residents themselves to monitor their own energy use and reduce their consumption.

The security system is nothing if not comprehensive. It includes a variety of specially tailored alarms to detect thieves, burglars, smoke and gas. It's fully integrated, and connected back to the security centre operated by the professional security enterprise, SOK Co Limited. CCTV has also been installed in the children's park, basement parking area and lift.

The introduction of such a system has enabled Hyundai to become a leading enterprise in the field. The company has raised the price of its apartments, which have continued to increase in value. The Hyundai Apartments are undoubtedly the buildings of the future, and while they may not be able to prevent a concerted attack, the buildings will make their residents feel more secure and less stressed.

**The security system is nothing if not comprehensive. It includes a variety of specially-tailored alarms to detect thieves, burglars, smoke and gas. It's fully integrated, and connected back to the security centre operated by the professional security enterprise, SOK Co Limited**





ORGANISATION ALPHABAR	PROJECT TOUGHENED BEER GLASSES	BRIEF TO REDUCE VIOLENT GLASSING ATTACKS IN PUBS AND BARS	DESIGN SOLUTION AN INNOVATIVE NEW TYPE OF GLASS WHICH IS TOUGHENED SO THAT IT IS HARDER TO BREAK AND SHATTERS INTO TINY PIECES WHEN IT DOES	IMPACT GLASSING ATTACKS DOWN TO ZERO IN MANCHESTER. ALPHABAR PROFITS UP BY 15%
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Although a scientific investigation of the impact of toughened glass has yet to be completed, in February 2001 the Manchester Evening News announced: " 'Glassing' attacks are down to zero."



well in France not so much because it is less dangerous, but because it's so durable.

"The problem up here in the North West is that the big breweries are powerful, and they've been resistant to toughened glass," says Max. "Mainly because they've been dealing in massive contracts with suppliers of standard glass, and it takes time to change. But there's a strong tradition of independent pubs and bars in this area, so we've been able to make big in-roads there."

But the big breweries are making progress in helping to bring toughened glass to the drinking public. As a spokesman for the Brewers and Licensed Retailers Association said: **"The pub industry is acutely conscious of its social responsibilities, and is second to none in working constructively with the**

**government and the police. This new initiative on toughened beer glasses underlies how we are responding to people's concerns with practical action."** In fact, almost 50% of pubs and bars have now begun to use toughened glasses.

"Glass is so dangerous, even when people don't really want to hurt someone," says Max. "I heard recently of a landlord who was trying to throw five youths out of his pub. One of them lost his rag and threw his beer bottle at the wall – just to make an impact. But a piece of jagged glass flew in the eye of two-year-old. Beer glasses are only really dangerous if you've smashed them first. Same with wine glasses. People knock the balloon off and used the jagged head on the stem to stab with. It's much more of a problem in the UK than anywhere else in Europe. There are more aggressive people here."

There is no doubt that the SafeGlass-SafeCity campaign is working. Although a scientific investigation of the impact of toughened glass has yet to be completed, in February 2001 the Manchester Evening News announced: " 'Glassing' attacks are down to zero." But the same is not true in all UK cities. In the words of Max Perez: "I go to London quite a lot, and I'm always shocked by the amount of venues that don't have toughened glasses. I wouldn't like my kids to walk into a venue where there was no toughened glass."

Max is keen to push the toughened glass culture throughout the land. "Selling safer glass makes sense from every point of view. Not least of all from mine. Since switching to selling toughened glass, my business has improved by 15%."



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## SHARP PRACTICE HOW A NEW TYPE OF DRINKING GLASS CUT VIOLENT ATTACKS





**"So if you knock one over, or fall on it, you're not in hospital. And if someone decided he wanted to slash you with it, he'd be disappointed. He'd have trouble smashing the glass in the first place, and when he did, he'd have nothing left in his hand!"**

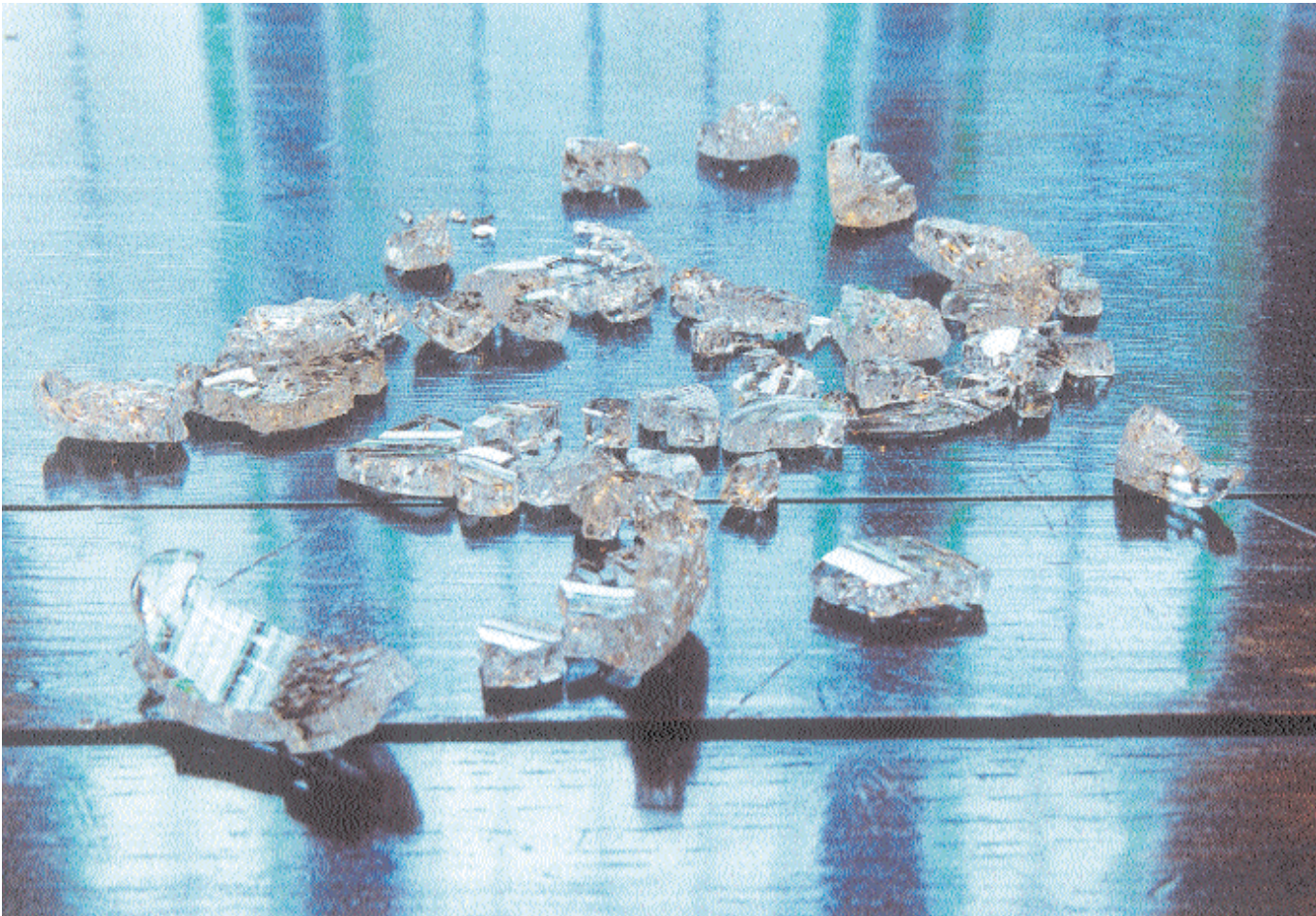


A few years back, Max Perez went to a wedding in Southport. He was enjoying himself – it was a happy affair. He was chatting away to some mates when he spotted some trouble brewing. “Some guys had walked in uninvited. One of them had picked a bottle up, and another had taken a pint glass. Then they started being abusive to the ladies. Me and a bouncer walked over to tell the ladies to move away and the guy with the pint broke the glass on a table and then stabbed the bouncer in the chest. Then he stabbed a girl, cutting her wrist. As I moved in, I got shoved by one of the guys while the one with the bottle used it to slash my face.”

Max Perez worked in the glass business at the time. He was owner and Managing Director of

AlphaBar drinking glass suppliers, based in Warrington. The incident made him change his business forever. “It brought home to me how dangerous the glasses I was selling were. I knew I couldn’t sell that stuff anymore. I also knew the French had come up with toughened drink glasses, but there was a problem selling them here because they were too expensive.”

And then it happened again. Rachel Franks, a young woman having a drink in a Manchester bar, was nearly blinded when a man shoved a broken glass into her face. Max found himself working hand in hand with Greater Manchester Police and the Manchester Evening News to promote the use of toughened glass. The SafeGlass-SafeCity campaign is a growing partnership, working towards making



Manchester city centre a safer place for people to visit and enjoy its vibrant nightlife.

**“Toughened glass lasts longer than normal glass,” says Max. “Sometimes five times longer. It’s much harder to break, and, if it is smashed, it breaks into loads of tiny, blunt pieces. That’s great. Suddenly glasses aren’t dangerous any more.** So if you knock one over, or fall on it, you’re not in hospital. And if someone decided he wanted to slash you with it, he’d be disappointed. He’d have trouble smashing the glass in the first place, and when he did, he’d have nothing left in his hand!

“And the other bonus is that people drinking out of them can’t tell the difference between

the two. If you put a bright light behind two pints of beer, one in a toughened glass, the other in a traditional one, you might notice the traditional glass was more transparent, but you’d never tell in the sort of light you have in pubs or bars. Even outside in the beer garden you’d be pushed to notice.”

The secret of toughened glass lies in its manufacture. Specially formulated glass is slowly heated, and then quickly cooled several times. The process, which is similar to the tempering of steel in the manufacturing of quality knives or tools, produces multiple layers within the glass. This strengthens the glass, increases its impact resistance by more than five times and eliminates stress points, allowing it to withstand temperature extremes. It’s sold





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Published January 2002  
Registered Charity no: 272099  
© 2002 The Design Council  
ISBN

Designed by howdy  
Written by Nick Skeens  
Researched by Design Policy  
Partnership