Lighting Design and the Community

Olsson & Linder Lighting Design

Natalie Bell, ICE Presentation 2009

Contents

Section One
Light and Humans

- Light and humans questionnaire

Section Two
Lighting and Safety

- Street lighting
- Guideline Analysis
- The Meadows analysis

Section Three
Urban Development

- Liverpool One case study
- Lighting Design in Scottish Cities
- Castleford regeneration case study
- The Green lighting design

Aims of questionnaire

- Most vulnerable age group
- Population most likely to feel at threat in the area they live
- Elderly and vision constraints during dark evenings
- 85 people questioned in total, 51 female, 27 male
- 35-50 and 24-35 most accessible age group

Age categories

80+, 70+

50-70

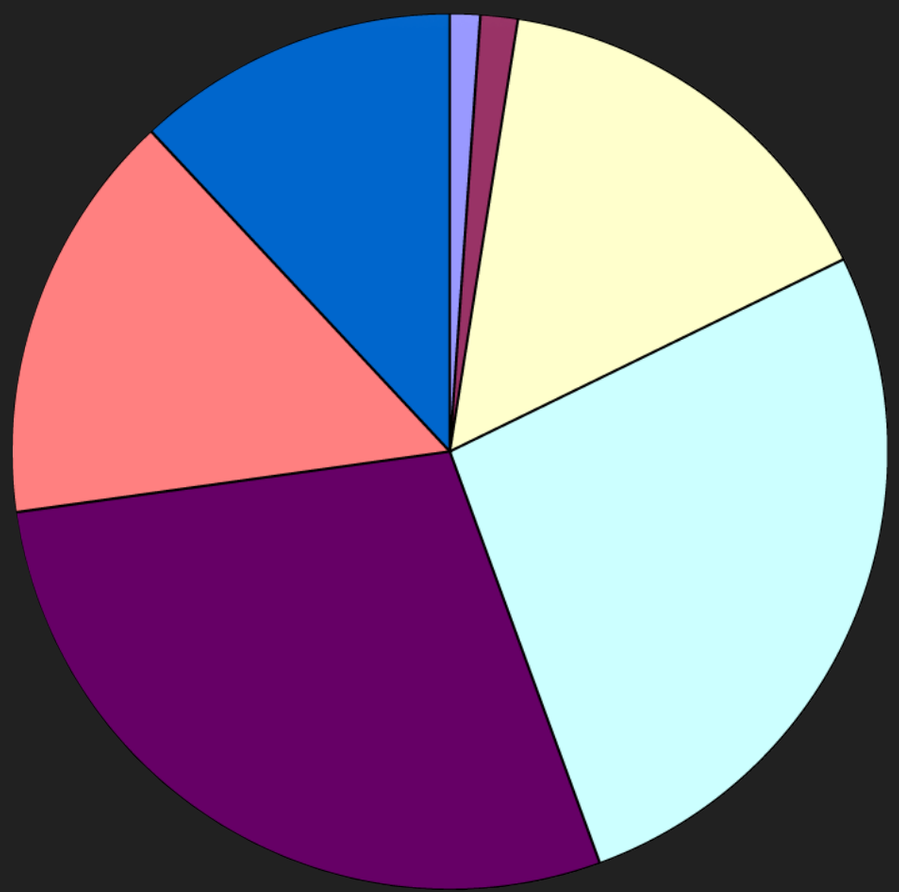
35-50

24-35

18-24

Light and Humans

Age and vision questionnaire



80+	1=Male
70+	1=Male
50-70	6=Male, 7=Female
35-50	9=Male, 14=Female
24-35	10=Male, 14=Female
18-24	0=Male, 13=Female
Anonymous	0=Anon, 7=Female

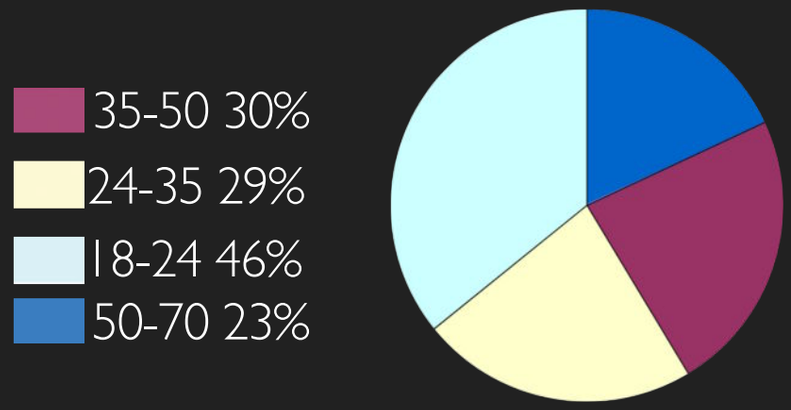
- Results obtained through street questionnaires, main shopping streets, university areas, parks and small shops
- 85 people questioned in total
- 51 female, 27 male
- 35-50 and 24-35 most accessible age group

Light and Humans

Age and vision questionnaire

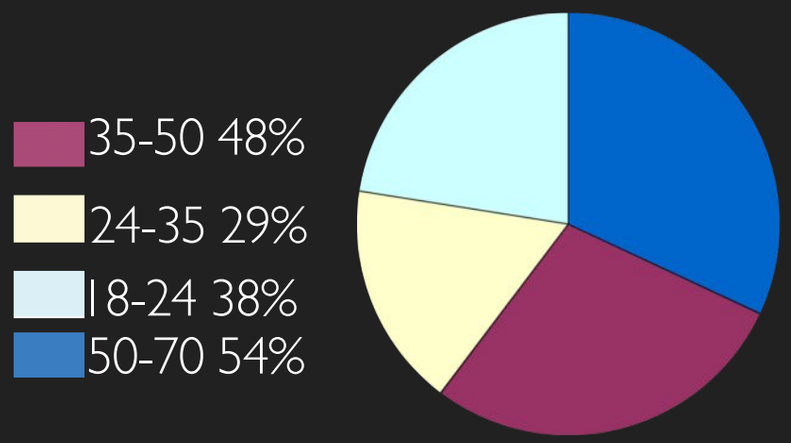
Activities vary the most from summer to winter

- 18-24 age group find activities to vary the most from summer to winter



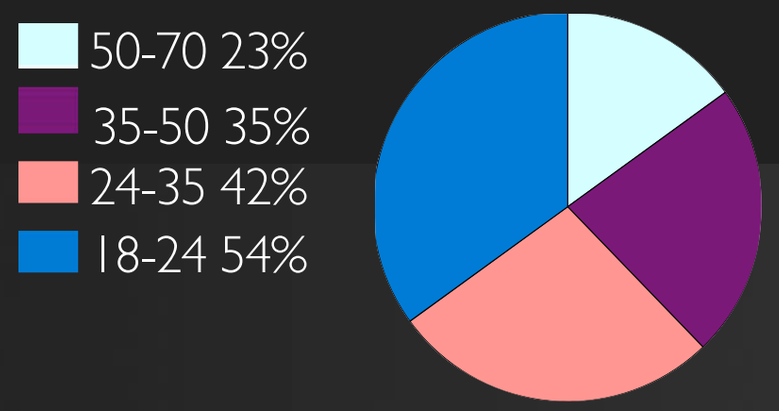
Most common age group to report crimes

- 50-70 most common age group to report a crime in their area
- Followed by 35-50 and 18-24 age group

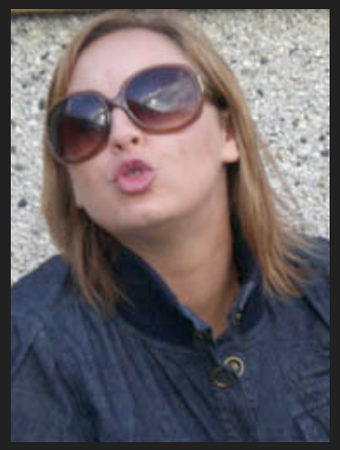


Sample that lock their house/ flat door whilst inside

- 18-24 age group most likely to lock their house or flat door whilst inside
- 24-35 feel most at threat in their area



Age and vision questionnaire results



35-50

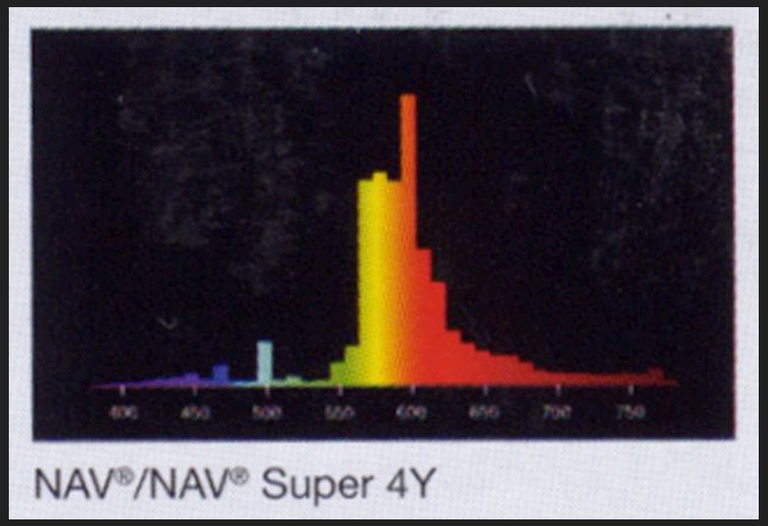
24-35

18-24

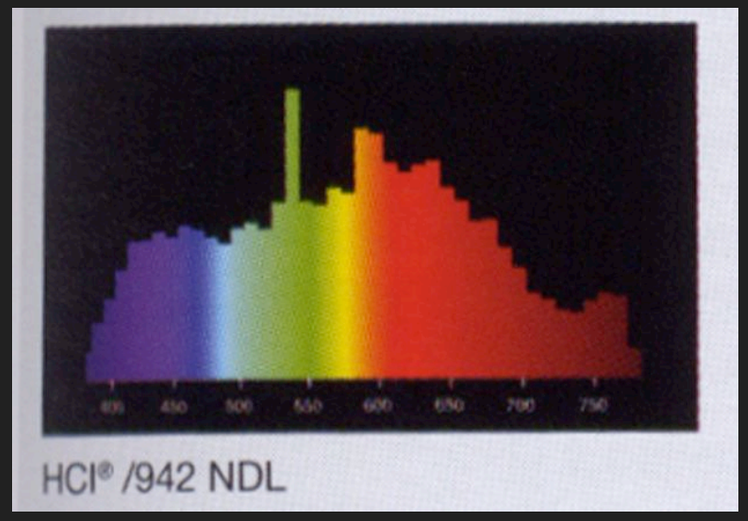
Relation between activity, lighting and perception of safety

- Population that feel most at risk is 50-70 and 24-35
- 35-50 and 18-24 have reported most crimes in their area
- 24-35 year olds find their area the poorest lit
- 18-24 lock their house/ flat door whilst at home
- 18-24 feel their activities to vary the most from summer to winter

Age and vision questionnaire conclusion



Relative Spectral Power Distribution of discharge Lamps, OSRAM Indoor and Outdoor Lighting 2008/2009



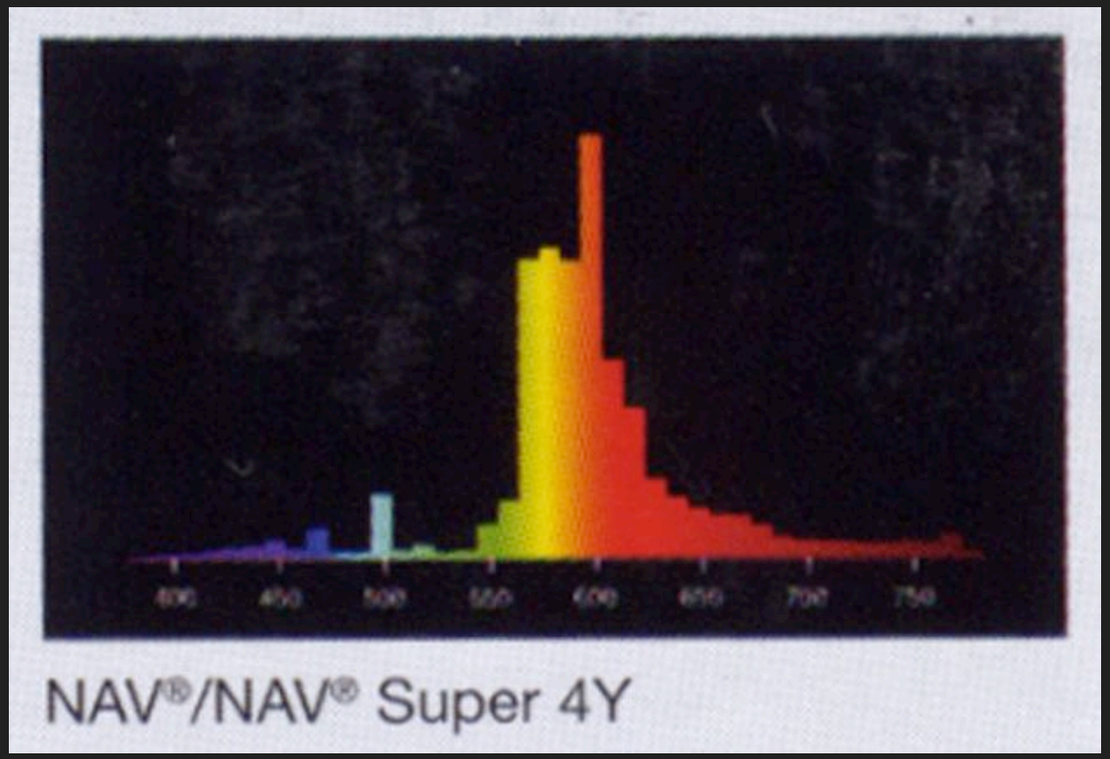
High Pressure Sodium Lighting

Ceramic Metal Halide Lighting

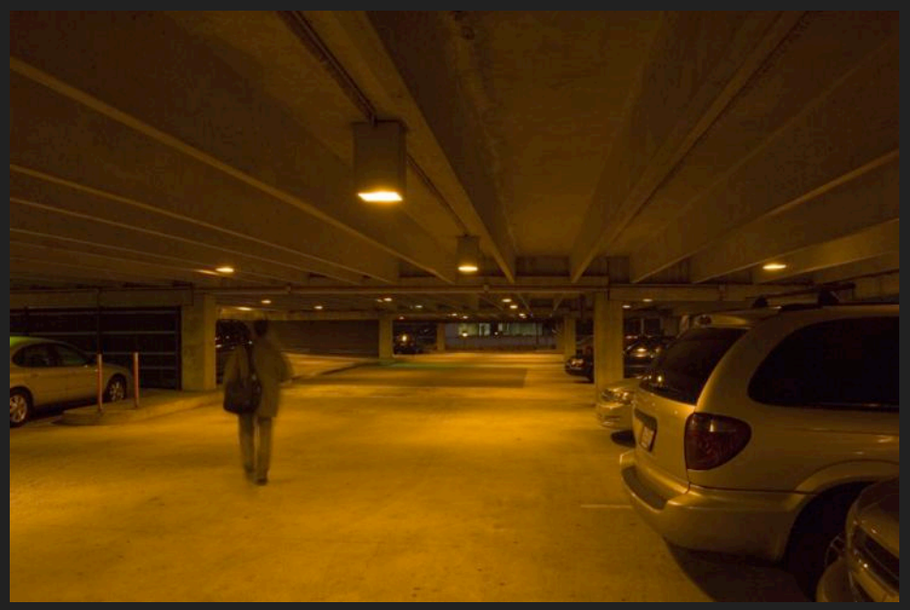
- White light perceived as brighter due to colour rendition
- 400W metal halide Ra of 90, 40,000 lumens
- 400W high pressure sodium Ra of 60, 55,500 lumens

Lighting and Safety

Street lighting



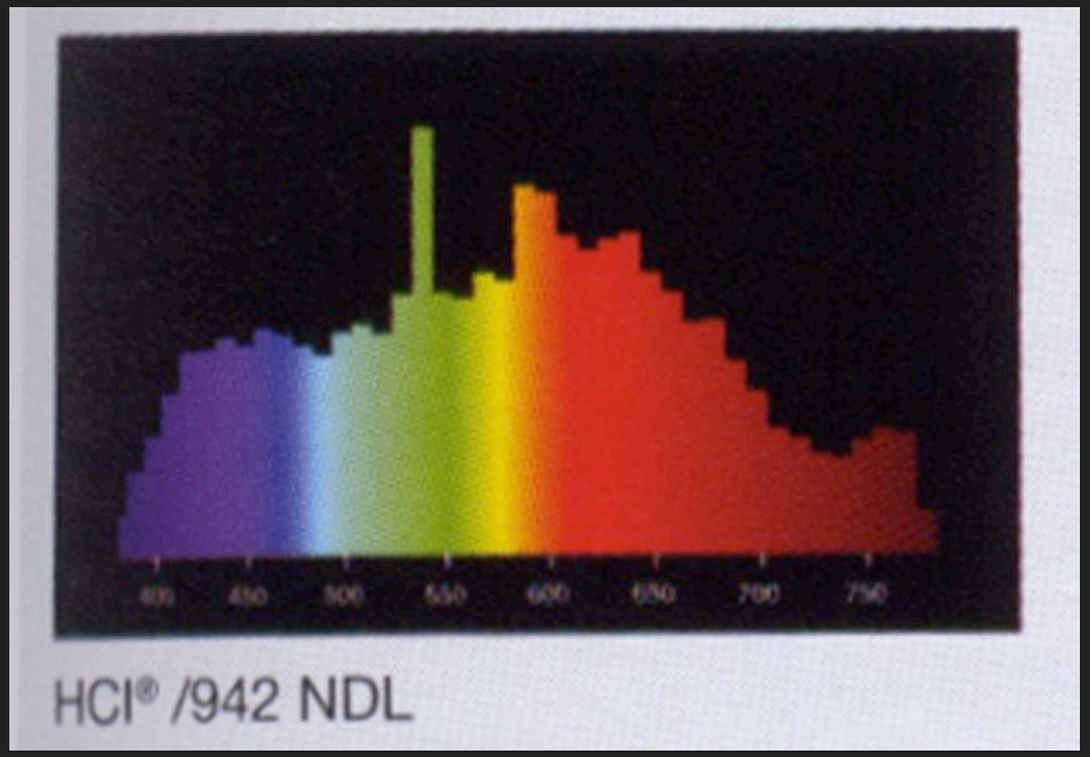
- Low visible light in the 400-550 wavelengths
- Poor perceived brightness
- Reduced visual perception



High Pressure Sodium Lighting

Lighting and Safety

Street lighting

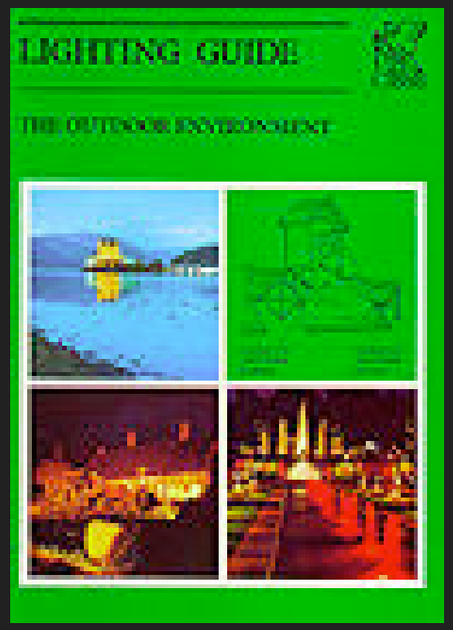


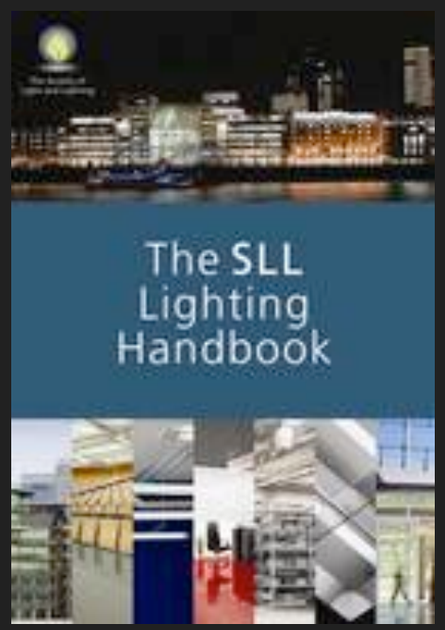
Ceramic Metal Halide Lighting

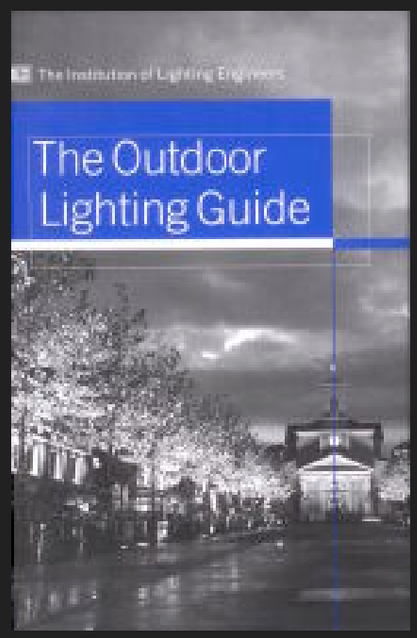
- Feeling of safety relates to visual perception and brightness
- Using both lamps in lighting design have advantages

Lighting and Safety

Street lighting







- Lighting guides should not be used as regulations in terms of Urban lighting
- Very few actual lighting legal requirements: Emergency lighting, listed buildings, road lighting and Part L building regulations
- CIBSE Lighting Guide to the Outdoor Environment, vague guidelines with no flexibility depending on environment
- Only a guide that all walkways should have 20 Lux

Lighting and Safety

GUIDELINES NOT Regulations

Edinburgh,
Scotland

The Meadows Park

- Emphasis on the user, close site analysis at different times of the evening and year
- Results concentrate on light levels, routes taken through the parks and overall safety
- Area surrounded by housing
- Meadows population mix of elderly, professionals and students

Lighting and Safety

Existing project analysis

Date	Time	Lux Levels on paths (Average Lumens per square meter)	18-24 Year Old (%)	24-35Year Old (%)	35-50 Year Old (%)	50+ Year Old (%)	Female (%)	Male (%)
18.08.08	17.30	460	80	10	0	10	50	50
30.09.08	18.30	360	50	40	5	5	60	40
30.09.08	19.00	290	60	30	10	0	70	30
22.11.08	20.00	6	20	80	0	0	70	30
24.09.08	22.00	3	10	90	0	0	60	40

- Posts utilise metal halide lamps down main walkway, high pressure sodium on smaller paths
- Park mainly used as a thoroughfare
- Mainly used by females of 24-35 age group
- No youths seen hanging around at any time
- 90% of people walking on path with metal halide lighting posts

Lighting and Safety

The Meadows analysis

- Area renowned for high income professionals
- Mix of high pressure sodium and metal halide lamps
- Successful to deter public from using more secluded pathways
- White light perceived as brighter due to colour rendition
- 400W metal halide Ra of 90, 40,000 lumens, 400W high pressure sodium Ra of 60, 55,500 lumens
- Edinburgh City Council or Police would not release crime statistics

Lighting and Safety

Conclusion

Urban Development

Liverpool One case study

Merseyside Police 2008

- Evidence of substantial drop of reported crime from 2005 to 2007
- Not perception of safety, achieved a safer city through crime tackling initiatives
- Before development crime was higher in winter months
- Relation between crime and insufficient lighting

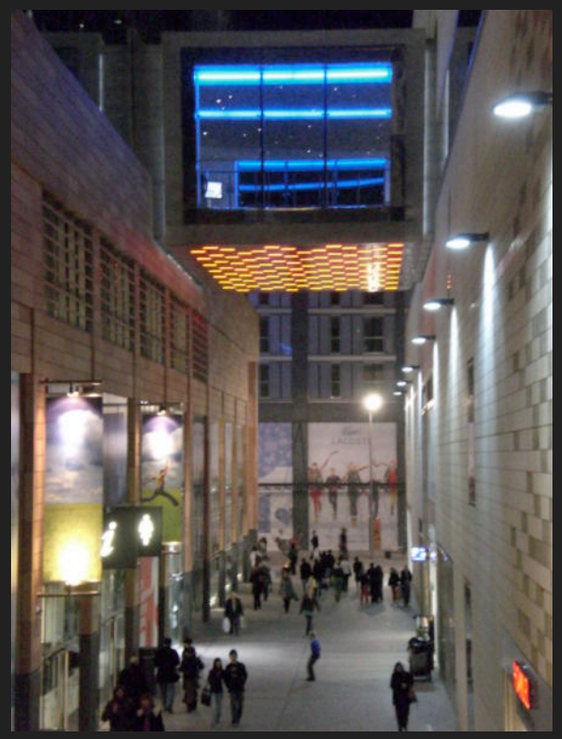
BDP lighting concept

Urban Development

Liverpool One case study

1.

2.



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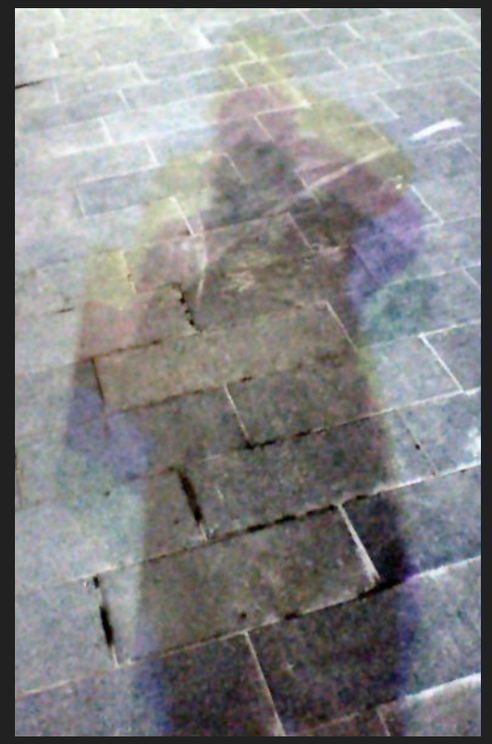
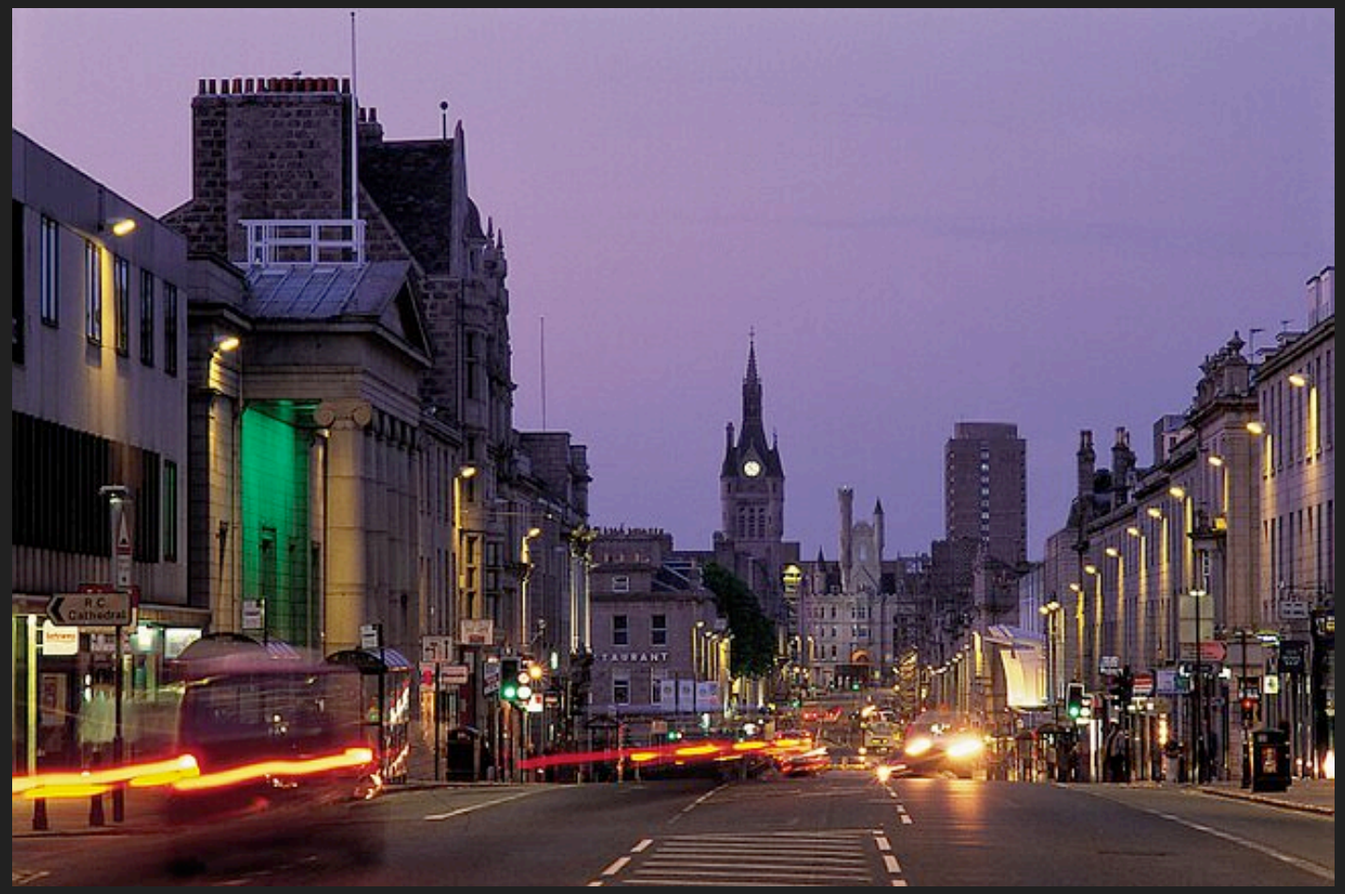
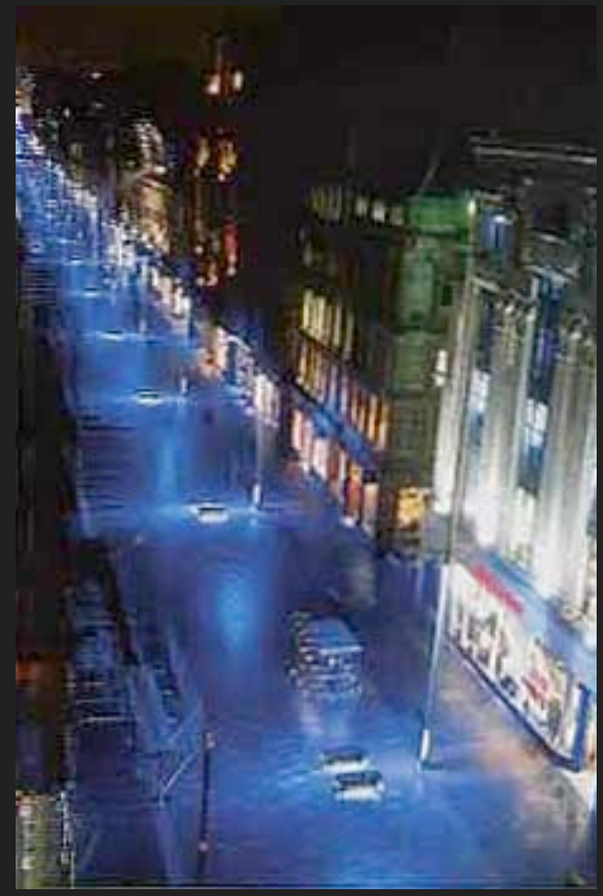


- Levels of area described through lighting layers
- Layers to encourage users into correct areas of redevelopment
- Low glare high quality integrated lighting to discourage vandalism
- Designed to human scale with user in mind throughout whole process
- Main theme for safety was to encourage user into the space, people acting as surveillance
- High quality lighting to encourage people into the space

Urban Development

Liverpool One case study conclusion





Aberdeen

Glasgow

- What contributes to a successful Lighting design?
- Who has responsibility over the control of lighting in town and cities?
- Can anyone here think of a pleasant Scottish urban environment where lighting contributes to evening identity?
- What would be a better solution? Is the combination of street and facade lighting effective?

Urban Development

Lighting design in Scottish Cities

- Small UK town, suffering from industrial decline
- Locals wanted to make a change
- Community of Castleford helped plan and design their own towns future
- Parklife designed park area for the community with heavy influence from the locals
- Presentation and design tailored for the community's wants and needs

Urban Development

Castleford case study

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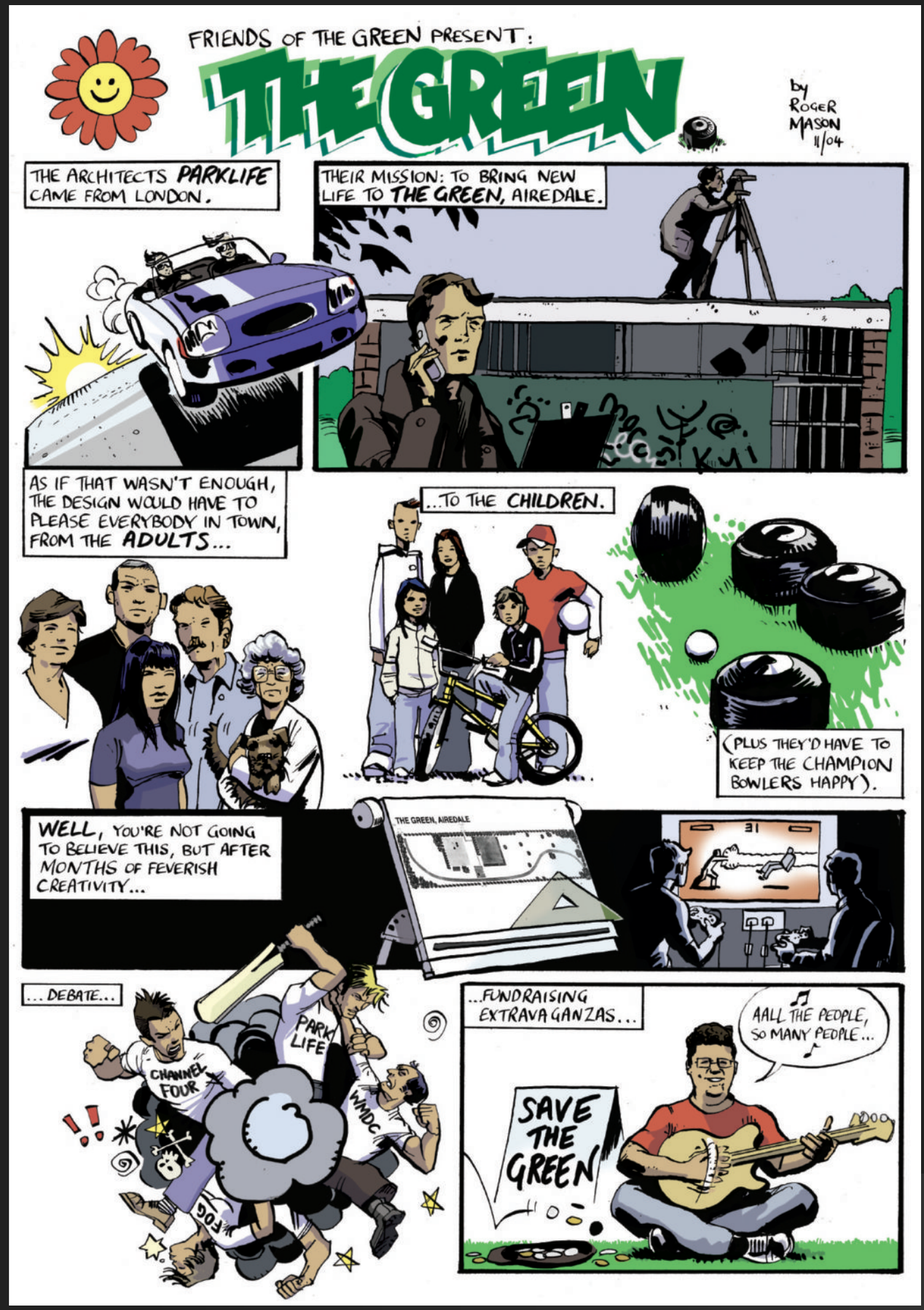
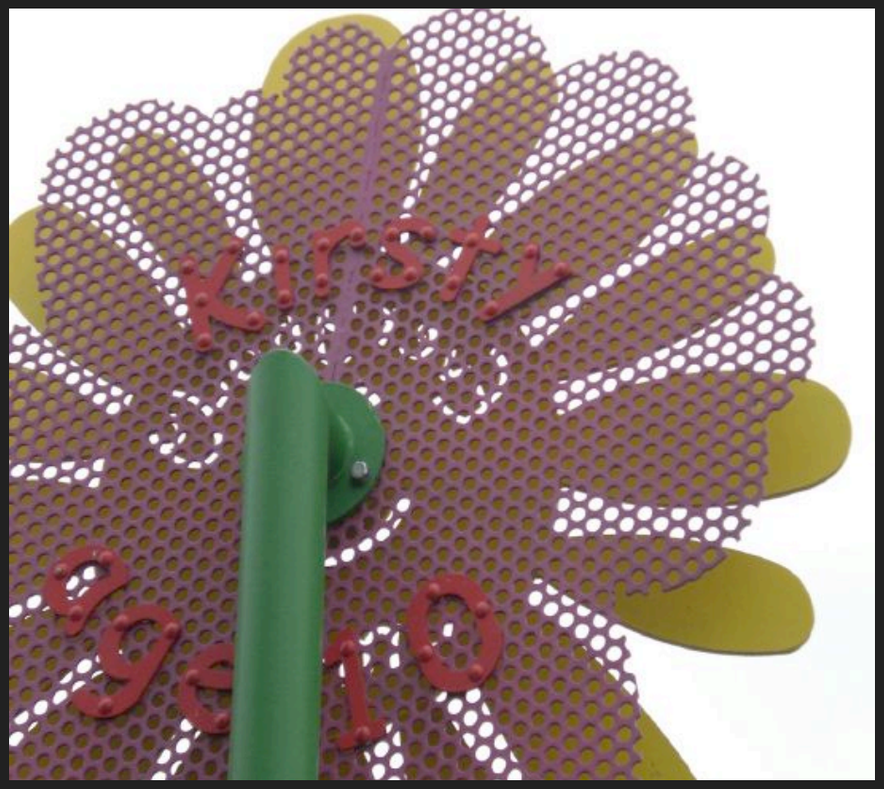
Urban Development

Castleford case study



Parklife Art Panel



Example of local children's involvement with design

Urban Development

Castleford case study

- Area marked in red only area of design realised due to budget
- Small bouts of vandalism led to community incentives to look after area
- Maintenance costs down after regeneration
- No lighting due to small budget

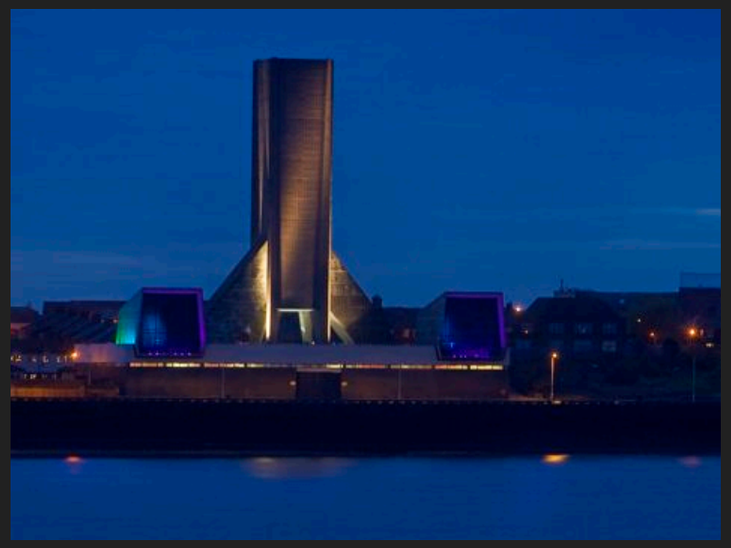
Castleford: The Green lighting design

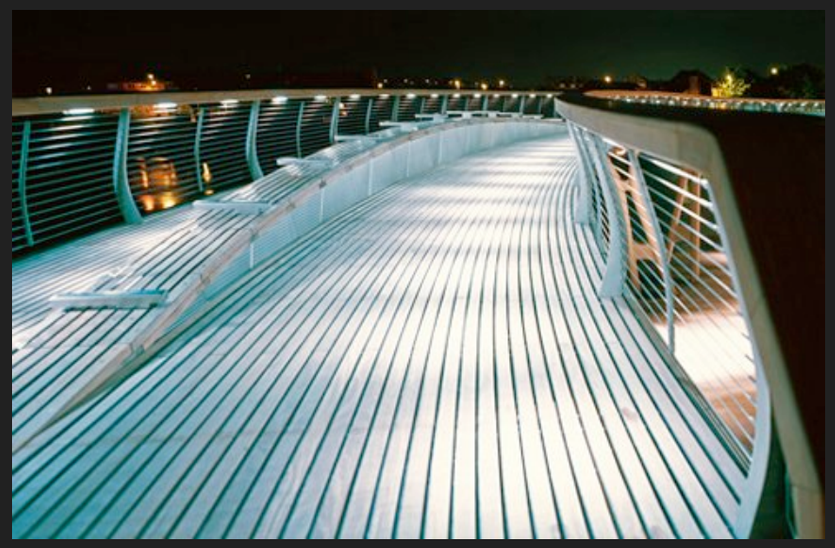
Luminous football/ bowling balls to
be supplied by local bowling club

1. Low level integrated at bowling green/ football pitch, to utilise fluorescent lamps for high colour rendition and easy maintenance, bowling club in charge of lighting control
2. Feature lighting posts to highlight entrance and flower sculptures made by local children
3. Integrated lighting at play park
4. Lighting to accent dragon sculpture designed by local children

Castleford: The Green lighting design

‘Lighting for Social Identity’



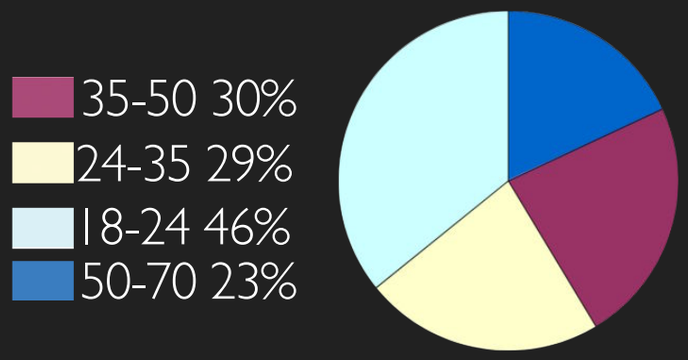


- Work alongside architects, designers and Architectural Liaison Officers
- Arrange CPD with local community groups, police, engineers and architects
- Research gained from first hand questioning dealing directly with the community. Data should be linked back to quantitative data of the area/streets in question
- Research gained from city analysis will help to define key lighting regulations and guidelines
- Raise local awareness of lighting, crime and design
- Providing innovative energy efficient lighting solutions, not sacrificing lighting quality

Urban Development

Future Methods

Activities vary the most from summer to winter



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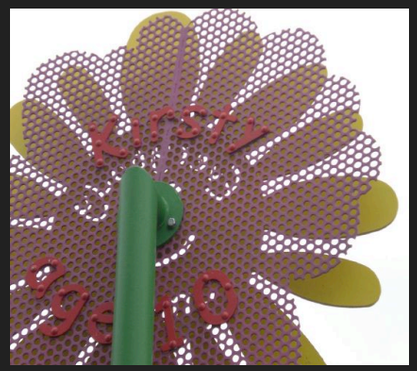
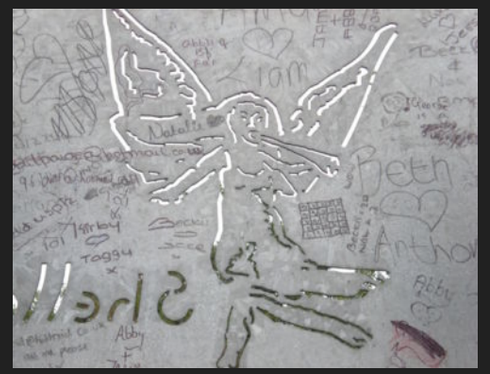


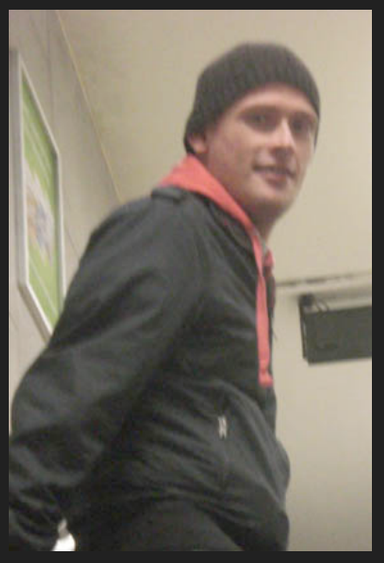


- 18-24 age group most effected by seasonal daylight changes
- Before design research should take place of who uses the space and why
- The 50 plus age group were shown not to be affected by evening lighting conditions
- Perceptions of safety should be confirmed by on site research and statistics
- Most successful regeneration designs concentrate on the needs of the community

Findings







Design for the people

- Design for the community not for design sake
- Research the area, in relation to crime statistics and local perceptions
- Discuss and develop the design with the community, find out what they need and want
- Do not only rely on lighting design to provide a safer environment
- Consider lighting control as part of the design

Conclusions