

**Arundel House  
36-43 Kirby Street  
London EC1N 8TE**

**‘UNITE COMBINED STATEMENT’**

**Access**

**Crime Prevention**

**Sustainability and Energy**

**July 2006**



## **ACCESS**

### **Our Customers**

UNITE is the UK's leading specialist provider of accommodation services for students and NHS key workers. UNITE currently manages in excess of 42,000 bed spaces nationwide and has collated data on our customers via a research and development programme.

UNITE's intention is to foster a more inclusive approach to design in order to accommodate the needs of all people, to enhance or customers' quality of life and provide accessible, attractive and safe buildings.

The demographic profile of our customers falls predominantly within the 18-24 year old age bracket. Experience shows that less than 1% requires specialist accommodation owing to a disability.

When an application for UNITE accommodation has been received, the needs of the individual will be assessed and the most suitable accommodation type will be assigned.

### **Context of Current & Imminent Regulations**

The BRAD Part M (2004) includes a change to definitions relating specifically to student accommodation. The 1999 Part M defines student accommodation (other than traditional halls of residence) as being 'Dwellings' (page 6, item 0.8ii), whereas the 2004 Part M defines Dwellings to include 'new blocks of flats built as student accommodation'

Other than this, the intention of this part is also to ensure that every normal residential dwelling is provided with suitable access, basic accommodation and necessary facilities. Also, the intention of this part is to provide more flexible residential accommodation for an aging population where future mobility of residential occupiers may change over the years.

Finally, the intention is that wider facilities are provided where they apply to buildings other than dwellings.

### **Location**

Potential sites are selected on the basis of their relationship with city centre facilities, university institutions and the public transport infrastructure running between these

locations. Kirby Street is easily accessible from Farringdon Tube Station by foot in 5 minutes.

### **Approach to the Building**

The approach to the building is the area of land within the curtilage of the property, from the boundary of the site up to the building itself. The approach to the building and any internal courtyard will be level, however any changes due to site conditions, will be overcome with the use of ramps and steps compliant with Part M section 6.

### **Entrances**

The main entrance to a UNITE property will be accessed via an access controlled main door. Access will solely be provided for residents and the accommodation manager. Visitors to the property can gain entrance via an intercom system linked to the flats and the management office/reception desk. In the interest of security no remote door release is fitted on the main door, residents will have to come down from the flat to let their visitor in. A separate entrance will be provided for the occupiers of the workshop element.

Within the main entrance area and generally part of the common room an accessible WC compliant with Part M of the Building Regulations is provided and is available for use by all visitors.

### **Means of Escape**

An inclusive environment is one which people not only enter and use safely but one in which they can reach a place of safety in the event of an emergency. A disabled refuge will therefore be located as detailed in BS5588 where there is wheelchair accessible facilities provided on an upper floor. In all cases local contingencies will be developed to facilitate full evacuation as necessary.

### **Access for all**

Visitors to UNITE's developments who are not resident have access to a fully accessible disabled WC, the Common Room and all other principle areas where common facilities are provided. This ensures that all circulation areas are covered by an extra WC suitable for wheelchair-bound visitors.

Access for all is provided as standard by UNITE, with an appropriate welcome to all visitors by the usual provision of the following:

- Reception desk with lowered section - Design and levels to eliminate glare, shadows and provide contrast
- Lighting - Carefully planned
- Acoustics - Induction loops fitted in reception and mobile loops on demand
- Tactile floor surfaces - Externally at ramps and stairs
- Furniture and grab rails - Contrasts and heights considered

- Toilets in 'public' areas - Fully accessible for visitors
- Emergency escape systems and procedures - Designed for all (including people with disabilities)

### Compliance with Part M

	Design Considerations and Provisions	How UNITE Satisfies the Requirements
	Extract of BRAD Part M (2004) for Hotels and Motels	
(4.17)	Sleeping accommodation, where provided for a significant number of people, eg in hotels, motels and student accommodation, should aim to be convenient for all. People who use wheelchairs are likely to require greater provision of space and access to en-suite sanitary accommodation. A proportion of rooms will, therefore, need to accommodate wheelchair users. In student accommodation it is beneficial to have a wheelchair-accessible toilet available for use by disabled visitors.	UNITE accommodation is solely intended for our target market of students and is city centre based. The accommodation provided by higher education institutions is generally on campus and this is often used during breaks in the academic year, particularly over the summer period, for hotel/conference type accommodation. The provision of accessible accommodation in city centres, (away from university campuses) allocated on a wholly residential dwellings basis (not conference), is significantly less than otherwise required in on-campus facilities. UNITE provides an accessible WC at the main entrance for use by disabled visitors.
(4.18)	Wheelchair users should be able to reach all the facilities available within the building. In general, accessible bedrooms should be no less advantageously situated than other bedrooms. It would be beneficial if entrance doors to wheelchair-accessible bedrooms were powered-opening, as this could avoid the need for the 300mm access space adjacent to the leading edge of the door.	Shared building facilities in UNITE accommodation are generally close to the main entrance and are fully wheelchair accessible. Doors have a leading edge to ensure ease of use and accessible flats and bedrooms will be fitted with delayed action door closures.
	Wheelchair-accessible bedrooms	Bespoke accessible bedrooms

	<b>Design Considerations and Provisions</b>	<b>How UNITE Satisfies the Requirements</b>
(4.19)	should be sufficiently spacious to enable a wheelchair user to transfer to one side of a bed, with or without assistance. Wheelchair users should be able to manoeuvre around and use the facilities in the room, and operate switches and controls. They should also be able to gain access to and conveniently use sanitary accommodation and, where provided, balconies. En-suite sanitary facilities are the preferred option for wheelchair-accessible bedrooms. Unless there are compelling reasons for not doing so, there should be at least as many en-suite shower rooms and en-suite bathrooms, as mobility-impaired people may find it easier to use a shower than a bath. An en-suite shower room or bathroom would benefit from having a finger rinse basin adjacent to the WC, as well as a wash basin or basin in a vanity unit.	are designed to accommodate wheelchair-bound customers, in accordance with BRAD Part M (2004) and BS 8300, where the customer is independently mobile.
(4.20)	It is also important to ensure that, in all bedrooms, built-in wardrobes and shelving are accessible and convenient to use. It is an advantage if curtains and blinds are provided with automatic or other remotely controlled opening devices such as rods or pull cords.	UNITE provides build-in wardrobes which are accessible in accordance with BS 8300. Curtains will have remote controlled opening devices such as rods or pull cords when combined within accessible or inclusive accommodation.
(4.21)	Wheelchair users should also be able to visit companions in other bedrooms, for example when attending conferences or when on holiday with their families. In these instances, bedrooms not designed for independent use by a person in a wheelchair need to have the outer door wide enough to be accessible to a wheelchair user.	UNITE's accommodation is not used for conference lets, however wheelchair-bound customers can use corridors and circulation space to visit other flats as they would in any other dwelling. The flat entry door and bedroom door will be a minimum of 775mm clear.
(4.22)	For a proportion of wheelchair-accessible bedrooms, it would be	Demand shows that only independently mobile

	<b>Design Considerations and Provisions</b>	<b>How UNITE Satisfies the Requirements</b>
	useful to provide a connecting door to an adjacent bedroom for a companion.	customers choose to live off campus. Other nearby accommodation may suit companions.
(4.23)	For people with limited manual dexterity, electronic card-activated locks for bedroom entrance doors and lever taps in sanitary accommodation can be an advantage.	UNITE provides proximity card access and, in some cases, keys. In bespoke accessible accommodation all taps are lever taps.
(4.24)	<p>Sleeping accommodation will satisfy Requirement M1 if:</p> <p><i>For all bedrooms</i></p> <ul style="list-style-type: none"> <li>a. the effective clear width of the door from the access corridor complies with Table 2;</li> <li>b. swing doors, where provided for built-in wardrobes and other storage systems, open through 180°;</li> <li>c. handles on hinges and sliding doors are easy to grip and operate and contrast visually with the surface of the door;</li> <li>d. openable windows and window controls are located between 800 and 1000mm above the floor and are easy to operate without using both hands simultaneously;</li> <li>e. all bedrooms have a visual fire alarm signal, in addition to the requirements of Part B;</li> <li>f. any room numbers are indicated in embossed characters;</li> </ul> <p><i>For wheelchair-accessible bedrooms</i></p> <ul style="list-style-type: none"> <li>g. at least one wheelchair-</li> </ul>	<p>Table 4 is used for cluster flats and studios, as they are dwellings, which are intended for use solely for the intended target market, not for hotel-type visitors.</p> <p>Wardrobe doors open through 180° as standard.</p> <p>Handles to doors, kitchen units and wardrobes have an easy grip but do not look inappropriate for domestic situations.</p> <p>Windows control systems are suitable for the proposed installation and will comply with this requirement.</p> <p>The provision of visual signalling in all bedrooms is the subject of a specialist product being designed by a fire alarm specialist</p> <p>The room designation has raised letters and characters.</p> <p>UNITE provides 1%</p>

	<b>Design Considerations and Provisions</b>	<b>How UNITE Satisfies the Requirements</b>
	<p>accessible bedroom is provided for every 20 bedrooms, or part thereof;</p> <p>h. wheelchair-accessible bedrooms are located on accessible routes that lead to other available facilities within the building;</p> <p>i. wheelchair-accessible bedrooms are designed to provide a choice of location and have a standard or amenity equivalent to that of other bedrooms;</p> <p>j. the door from the access corridor to a wheelchair-accessible bedroom complies with the relevant provisions of 'Internal doors' (see 3.10), in particular the maximum permissible opening force, Table 2 and the need for a clear space of 300mm from the leading edge of the door to the side wall;</p> <p>k. the effective clear width of any door to an en-suite bathroom or shower room within the wheelchair-accessible bedroom complies with Table 2;</p>	<p>designated inclusive accommodation for customers with disabilities. Due to the diverse nature of these disabilities, this accommodation is not all wheelchair-accessible and is intended to satisfy need based on historic demand. Where required, a further 4% of the rooms within a building can be made available for conversion into inclusive rooms at a future date depending on demand.</p> <p>The accessible accommodation is generally placed close to the main entrance, at entry level, and will have good access to the communal facilities such as common room, laundry room and management office.</p> <p>This is not always possible, but it is not intended that accessible rooms will be less advantageously equipped or be in leftover space. However they are, as a policy, located adjacent to the common facilities, as item h (above).</p> <p>Wheelchair accessible bedroom doors are shown on our drawings. They have a clear opening of 775 mm and are to dwelling standards, ie Table 4.</p> <p>An accessible bathroom/shower room has a clear door width of 775 mm as for dwelling use.</p>

	<b>Design Considerations and Provisions</b>	<b>How UNITE Satisfies the Requirements</b>
	<p>l. the size of wheelchair-accessible bedrooms allows for a wheelchair user to manoeuvre at the side of a bed, then transfer independently to it. An example of a wheelchair-accessible bedroom layout is shown in Diagram 17;</p> <p>m. sanitary facilities, en-suite to a wheelchair-accessible bedroom, comply with the provisions of 5.15 to 5.21 for 'Wheelchair-accessible bathrooms' or 'Wheelchair-accessible shower facilities';</p> <p>n. wide angle viewers, where provided in the entrance door to a wheelchair-accessible bedroom, are located at 1050mm and 1500mm above floor level, to enable viewing by people who are seated or standing;</p> <p>o. a balcony, where provided to a wheelchair-accessible bedroom, has a door whose effective clear width complies with Table 2, has a level threshold and has no horizontal transoms between 900mm and 1200mm above the floor.</p> <p>p. there are no permanent obstructions in a zone 1500mm back from any balcony doors;</p> <p>q. an emergency assistance alarm (together with a reset button) is located in a wheelchair-accessible bedroom and activated by a pull cord, sited so that it can be operated both from the bed and from an adjacent floor area;</p> <p>r. an emergency assistance call signal outside an accessible bedroom is located so that it can be easily seen and heard by</p>	<p>A 1500 x 1500 transfer space is provided adjacent to the bed. A mobile bedside cabinet is also provided adjacent to the bed together with the alarm call point.</p> <p>The details of the shower/bath facilities are provided on the drawings. Hotel standards are not adopted as the provision of accommodation is for dwellings.</p> <p>The wide angle viewer is provided at 1050mm to accessible flats and studios in addition to 1500mm.</p> <p>Balconies are not normally provided in UNITE student accommodation, for safety reasons.</p> <p>See above (o).</p> <p>UNITE provides this alarm adjacent to the bed head (see item l above).</p> <p>Signals are audible outside the bedroom and at the management office.</p>

	<b>Design Considerations and Provisions</b>	<b>How UNITE Satisfies the Requirements</b>
	those able to give assistance and, in any case, at a central control point.	

References: Building Regulations Approved Document Part M 2004  
BS8300: 2001  
BS5588 part 5

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## **CRIME PREVENTION**

Every UNITE scheme incorporates carefully considered security measures taking particular account of the locale. It is often the case that crime in the immediate vicinity of student residences is improved because potential thieves are aware that students might, at all times of day and night, be occupying rooms overlooking the street. The existing ground floor is raised 1.5m above pavement level and this combined with the set back at this level offers the opportunity to incorporate student rooms on the street frontage. This together with the management office provides a level of natural surveillance to Kirby Street in accordance with Secure by Design principles.

The location of opening lights to vulnerable rooms have been reconsidered in the light of the crime prevention officer's comments and altered to minimise the opportunities for crime. The main entrance will be secure at all times, access being by digital code, and the fire escapes will be interlinked to the alarm system. The rear of the site will only be accessible through the main entrance. A twenty-four hour concierge service will be provided in this building and the entrances will be monitored by CCTV.

UNITE will look to provide an integrated security system, which includes the following:

- HiCo Magnetic Stripe Card Key Access System
- Door Intercom System
- CCTV and Monitoring/recording
- Emergency Call Point

### **HiCo Magnetic Stripe Card Key Access System**

Access control is provided (by card key and reader) to the outside of the building (or block front doors), the studio front door, external cycle park and other common area doors.

Where a push button door release is provided internally to allow exiting the building, the door should release for a period of 5 seconds upon operating the push.

The card key system shall include a working installation as follows

- Software and 'Locklink'
- Encoder
- UNITE printed cards (3 per bed space rounded up to nearest 500 cards per building)
- System commissioning, set up and staff training

Restricted Areas: Overhead Magnetic locks are fitted to the first fire exit door to escape staircases on each floor and where indicated on other restricted doors. The doors will have a fail-safe control link from the fire alarm system.

### **Door Entry Intercom System**

A multi channel audio door intercom system is provided from outside the building or other block entrance directly into the flat hall. Also visitors can contact the Management Office from outside the Block entrance via a single intercom button.

UNITE does not require a door release from the flat, the resident will have to go to the main entrance to allow a visitor into the building, however a door release from the Management office to the building front door is required.

The system shall operate in the following manner:

- On pressing the console button, the handset in the flat selected shall enunciate until attended on by the resident.
- The outdoor console shall incorporate a speaker transceiver allowing the caller to speak to the resident.

### **CCTV and Monitoring**

A CCTV system will be installed discreetly both internally and externally to the building at strategic positions around the property. A monitoring system will be located in the management office and also feed back to the UNITE Central Control Centre via ISDN.

This system will be of a high quality utilising the installation of high-resolution colour cameras producing constant high quality pictures of the key areas, i.e. all block entrances, communal rooms, management areas, reception areas and car parking areas.

CCTV cameras will be located at high-level ground floor on the Kirby Street frontage looking north and south to cover the main entrances and fire escapes to both the

studios and the workshops. Cameras will also be located in the courtyard to monitor rear entrances to the building for both workshops and studios.

### **CCTV Equipment and System Details**

The System will comprise of the following equipment, which will be located in the accommodation manager's office: -

- 1 x 9 way 320 gb D.M Digital Sprite storage system (if camera's exceed 9nr a larger unit will be required). To be positioned at a max height of 1.2m.
- 1 x Lockable cabinet suitable to house the D.M Digital storage system.
- 1No. 17" Colour Monitor
- Adpro fastscan unit complete with terminal adaptor
- 24 volt PSU's quantity subject to the number of cameras

### **Cameras**

- External static colour 24-volt high-resolution cameras fitted with 4-10mm auto iris vari focus lens.
- External Cameras to be housed within a wall mounted weatherproof enclosure.
- Any Internal cameras will be static colour mini dome camera fitted with 3-8mm vari focus lens.

### **Telecom Requirements**

- Installation of an ISDN 2E line, using the low starter package (see voice and data spec for technical details). This line is to be terminated adjacent to the CCTV control location in the Accommodation Manager's Office.

Note: A link is to be provided by the contractor to interface into the Adpro fastscan unit, this will allow the fire alarm activation to be relayed via the ISDN 2E line to the UNITE central monitoring station at Bristol via the fastscan unit.

Lighting will be provided to all areas where CCTV is in operation. The minimum light level should be 20 LUX. Signage indicating CCTV operation must be prominently displayed around the building.

### **Emergency Call Point**

Will be located in the main entrance area and will comprise the following:

- Advanced visual solutions AV10255 stainless steel Intercom Call Point.

This unit is to be fitted with an integrated CCTV camera and audio announcement card fitted with the standard UNITE message chip.

## **Comments of Crime Prevention Officer**

UNITE have consulted with the Crime Prevention Officer with regard to the scheme and his comments are noted below.

-----Original Message-----

**From:** Terry.Cocks@met.police.uk [mailto:Terry.Cocks@met.police.uk]

**Sent:** 06 June 2006 09:10

**To:** Jagdeep Bhogal

**Subject:** RE: Kirby Street..

Jag

Sorry I haven't replied sooner on this. I have been very busy.

I have no real concerns about the development and I am sure it will be relatively easy to make secure.

I have listed a few areas for attention. These are very brief notes really only intended to support our discussions.

Entrance doors should not be recessed. Recesses create space and opportunity for anti social behaviour. The entrance door to the basement area should be to a certificated standard of security and I suggest that LPS 1175 level 2 or PAS24/24.

The entrance door to the cycle store should also meet with these standards and be of a solid design that does not allow for the cycles to be seen from the outside.

The doors to the individual workshops in the basement should again meet with the suggested security specification.

Where windows are accessible they really should have laminated glass fitted.

You may wish to explore the possibility of installing CCTV to cover the workshop area, entrances and perimeter of the building.

Your previously used standards for doors and glazing for the individual rooms will be perfectly acceptable to provide a high level of security.

I hope this assists.

**Terry Cocks**

**Crime Prevention Design Adviser**

**Camden Police**

: - [terry.cocks@met.police.uk](mailto:terry.cocks@met.police.uk)

- Met line 46323

( - External 0208 733 6323

\* - Holborn Police Station

Lamb's Conduit St

Holborn

WC1N 3NR

Glazing has been omitted from the cycle store and a solid door will be specified to avoid the cycles being visible from outside.

The entrance to the workshops is located on the frontage with no recess; there is a set back adjacent to this and it is intended that this will be monitored by a well located CCTV camera (please see comments above).

It has not been possible to set the UNITE entrance flush, it is set back to allow an adjacent fire escape to open outwards without creating a hazard on the pavement. In this instance the area is clearly visible from the UNITE office through the glazed frontage and will be additionally monitored by CCTV.

Where windows front public areas they will be fitted with laminated glazing, in addition opening lights will be situated at high level where they are not easily accessible. The comments regarding the security standard of doors are noted and will be incorporated into the project specification.

## **SUSTAINABILITY AND ENERGY**

### **Being Part of the Community**

Students improve the local economies, spending around £5,500/yr each. However high rent student ghettos and unbalanced transient communities with few locals have arisen. UNITE's aim is to work with city councils aims to restore ensure balance in the communities.

### **'Studentification'**

In modern university cities the influx of the growing number of full time students, currently at 1.36m, combined with a shortfall of university accommodation only accommodating 25.5% of this body leaves around 60% of UK students reliant on the private sector. Many private landlords have capitalised on this high demand, deciding to let their accommodation to students at high rents. This can lead to 'studentification'- the replacement of long-term residential groups with transient student groups. Consequently there is an unbalanced and fractured community with the small number of local residents and families unable to afford the inflated rents.

### **The Benefits of Students on the Local Economy**

42% of local students take part time jobs whilst at university: 33% work in retail, 17% in bars and pubs and 7% in nursing and health. (MORI)

A typical student spends £356/month excluding rent, including food (£122p/m), Going out/alcohol (£139) and Clothes and Mobile Phones (£62). (MORI)

Local students take part time jobs making the cities more prosperous and some graduates stay on leading to a cosmopolitan well qualified workforce in their university towns.

The demographic profile of our customers falls predominantly within the 18-24 year old age bracket. Experience shows that less than 1% requires specialist accommodation owing to a disability.

When an application for UNITE accommodation has been received, the needs of the individual will be assessed and the most suitable accommodation type will be assigned.

### **Commercial Halls as an alternative to HiMO's**

Commercial Halls avoid the creation of student ghettos and anti social

behaviour by housing the students in large purpose built blocks in a secure environment in central locations away from the private residential areas.

UNITE raises the standard of rented accommodation giving them a sense of ownership and pride in where they live as well as offering them improved services, locations, better transport links and a more controlled environment compared to the often shabby digs available in the private HiMO market.

### **UNITE helping the local community**

UNITE always consults the local community when new developments are considered and will soon be inviting our neighbours to Open House days to see them in action.

UNITE aims to work with the local city councils and residents to ensure balanced communities and to be an integral part in both tackling the current housing problem and in the creation.

The site at Arundel House contains commercial floor space in the basement, which will boost the local economy and prompts a sustainable coexistence between students and local residents.

### **Sustainably Improving the Student Housing in London**

The central government aim that everyone should have the opportunity of a decent home relies on the construction of new homes and has promised that the current annual construction of 150,000 new homes will rise to 200,000 by 2016. Importantly single person households are expected to account for 67% of household growth between 2001 and 2021, in part due to increasing divorce rates and single parent families, thus putting further pressure on the under supplied market. (ODPM)

An alternative to the construction of new houses is the *freeing* up of existing homes. The transferral of students from private HiMO accommodation and into larger commercial halls frees up whole streets for local residents and families.

The provision of residential accommodation exclusively for students increases the under-supplied accommodation for students and decreases the heavy demand on the private residential market, hence reducing the inflated rents allowing families and locals back into the community.

UNITE supports the need to improve the quality of student housing in the private sector and is an active founding member of the ANUK Code of Standards for Larger Developments and is participating in the latest consultation on the Codes of Practise. UNITE welcomes the Housing Act 2004 as it will discourage unscrupulous landlords and should ensure a better standard for students.

At Kirby Street, with services such as broadband, and en suite facilities, UNITE improves the way accommodation is offered to its customers. UNITE will actively lure encourage students away from traditional HiMO areas by offering them far better services and facilities.

### **Urban Regeneration of the Brownfield Site**

The building was used as an office for De Beers, the diamond merchants in the 1960s. The site meets Camden's definition of previously developed land and therefore the sustainability criteria of re-using sites is met, especially as over 75% of the overall site area is being built on (developed land is not just limited to the building footprint but the whole curtilage of the development). In addition the re-use of the site will address any potential contamination issues, as the appropriate steps will be taken to decontaminate the site prior to construction, which would otherwise not necessarily be undertaken.

### **Landscape & Biodiversity**

The development proposes a small terrace/courtyard formed out of the existing vehicular ramp. This would be soft landscaped and accessible to the students. At basement level a courtyard would be formed accessible to workshop tenants.

It is proposed that the majority of the hard landscaping to be in unbound block paving and gravel. Typical UNITE developments utilise SUDS (Sustainable Urban Drainage Systems) where appropriate.

### **Transport**

Kirby Street is ideally suited for pedestrian access to and from local amenities, and is less than 10 minutes walk from Chancery Lane and Farringdon Stations. Both Holborn and Clerkenwell Road are well served by a number of bus routes connecting to the rest of London.

Covered and secured cycle storage will be provided, accessed directly from Kirby Street for the use of both workshop and tenants. UNITE actively discourages the use of vehicles by residents and supports the principle of car-free development. There is zero car-parking at this site.

### **Recycling**

As a demographic group, our customers (the students) are likely to be one the most well-informed and committed groups in our society aware of the amount of unnecessary waste produced by the 'average' UK household. Even without recycling facilities, students produce on the whole 1/3 less mixed waste that would normally go to landfill, compared to the average householder. This is in the main due to their lifestyle. UNITE therefore

During construction, and depending on site constraints, construction waste is also split into categories for re-cycling and general fill.

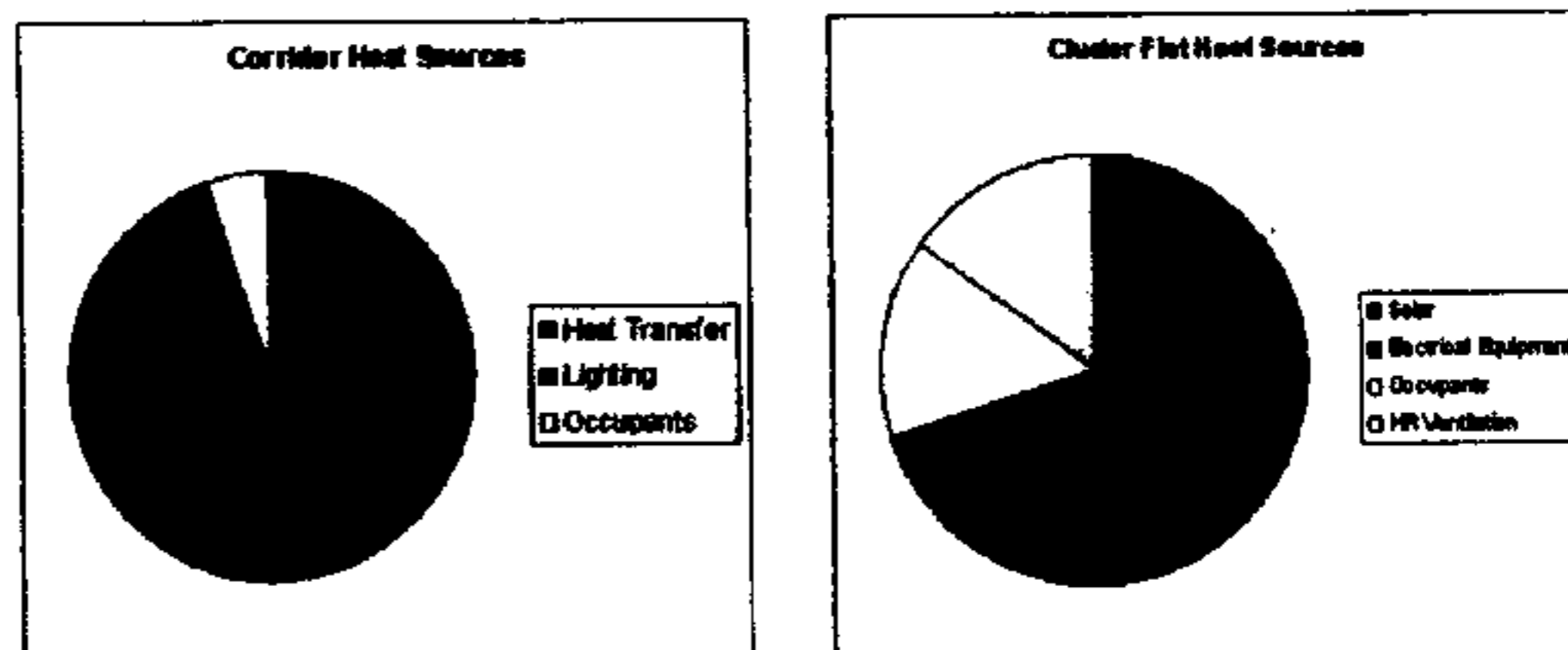
The proposed development at Kirby Street is to be built to meet, as a minimum, the EcoHomes Bespoke 'Very Good' rating, which means it will have demonstrated good environmental and sustainable practice across the whole scheme in terms of energy, materials, pollution, land use & ecology, water, transport and health & well being.

The critical issues facing UNITE in reaching and exceeding the requirements for reducing the carbon footprint involve the overall reduction of energy use when the building is in operation and mitigating heat gain in summer in order to produce a sustainable building which is comfortable in visual, acoustic and thermal terms.



## Heat Sources

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## Design Approach

UNITE's approach is to comply with Part L2A – Criterion 1:

- Create model of the Actual and Notional Building using SAP2005 or SBEM
- Compare the actual Co2 emission rate to the target rate.
- Modify the building construction and/or mechanical services to reduce to carbon footprint

## Limiting the effects of summer overheating

With reference to Part L2A – Criterion 3, UNITE produce calculations to demonstrate that the average daily heat gain below the average combined solar and casual heat gain figure of 35W/m sq., and that the internal temperature does not exceed more than 28deg C for more than a reasonable number of occupied hours during the summer.

## The UNITE Mechanical & Electrical Specification

At present, UNITE make full use of current energy saving devices and controls. All rooms are fitted with electronic 'touch' control heat and timing sensors to limit the input of energy whilst maintaining the recommended comfort levels of between 18 and 19 deg C in the winter. All light fittings are energy saving and efficient 2d compact fluorescent with these fittings being controlled by infrared movement on/off switches.

UNITE utilise Villavent's mechanical heat recovery equipment in all developments as a standard. The Villavent system heat recovery system is designed to completely change all the air in the property at least once every two hours, continually replacing the stale damp air with fresh, warmed, clean, filtered air.

The system recovers 60-70% of the heat normally lost through trickle vents and other breakout points in the building structure. The systems installed for UNITE typically can recover 70% (crossflow) 80% (rotary wheel) or 90% (counterflow).

The space heating systems proposed at Kirby Street will be determined during the detailed design phase of the scheme and in principle will be guided by the Part L2 criteria as above. It is probable that hot water production will be by condensing gas fired central boiler.

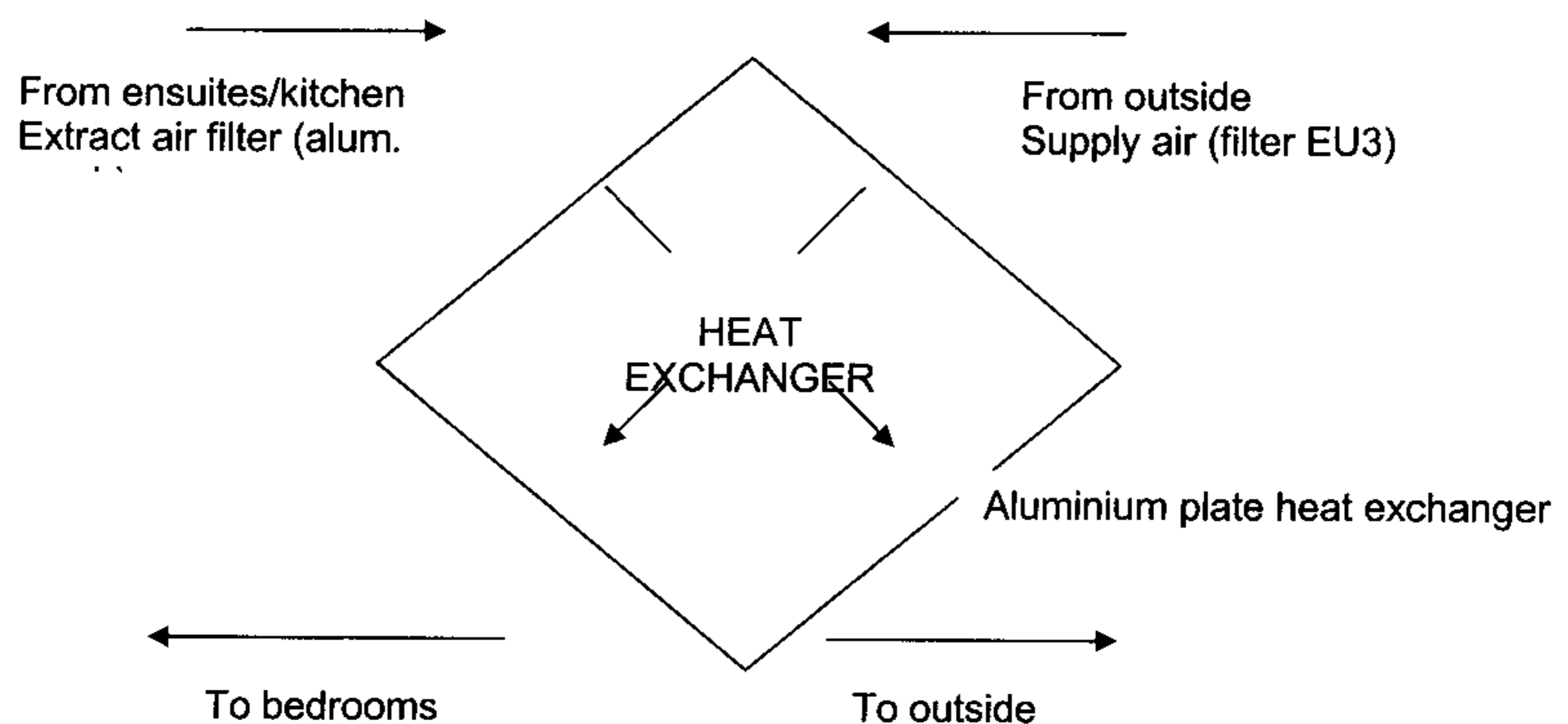
Visual Comfort is (the amount of natural day lighting) has been designed in accordance with the BRE Digest and recognises the balance between achieving good natural daylight levels against the risk of solar gain on the building fabric. The site at Kirby Street benefits to a degree by shading created by the surrounding buildings.

Acoustically, the building will be built to current Building Regs. External and internal noise will be absorbed appropriately by the building structure and components. A feature of the Villavent system is that, the windows do not have to be opened to allow the requisite amount of fresh air in, or to ventilate the building. Trickle vents are not required. Therefore, the building maintains its air tightness. The windows are nevertheless able to be fully opened in the conventional manner to allow rapid ventilation.

#### **Heat recovery ventilation (HRV)**

The system is designed to operate as follows:

- 0.5 air changes per hour per flat.
- 2.0 air changes per hour in 'wet' area.



### **Winter operation** (warming the air coming in)

e.g.	Outside temperature:	4°C
	Ensuite temperature:	20°C
	Supply air to bedrooms:	14.4°C
	Extracted air to outside:	5.6°C

### **Summer operation** ("possibly" cooling the air coming in)

e.g.	Outside temperature:	28°C
	Ensuite temperature:	24°C
	Supply air to bedrooms:	26.6°C
	Extracted air to outside:	25.4°C

### **The advantages of HRV**

- To allow fresh clean air in without opening windows and need for trickle ventilators and acoustic treatment.
- Opening windows can cause noise ingress, heat loss, and draughts
- To ventilate unobtrusively with no noise nuisance.
- To provide continual controllable ventilation throughout the flat.
- To maintain building structure.
- Low energy consumption 2 x 115w motors on transformer down to 2 x 50w (100 watts per hour) - £1 per week per unit - £0.20 per bed per week/5 bed cluster.

- 65-70% heat recovery on extracted air (as against 0% on other forms of extraction).
- Reduced condensation in ensuites and 'slippery floor'.
- Only 1 electrical point – only 2 breakouts per flat (fresh air in, stale air out).
- Easy connection to pods from corridor spine ducts.

### **Sustainable Building Primary Structure**

The building is structurally sound and so it is proposed to strip the building back to its concrete frame. A two-metre deep, two-storey high extension frame in steel will be added. The internal partitions are non-loadbearing and therefore, should the building ever be reconfigured, or change use (demanding alternate layouts) the primary structure will be able to accommodate such changes. In principle, the steel frame is demountable and re-cyclable. Wherever possible, UNITE seek to specify time form managed resource and certified FSC.

### **Water**

A common feature of UNITE inner city developments is that they incorporate a Sustainable Urban Drainage System (SUDS). Where possible, surface landscaping is designed to connect into the SUDS system to allow a more natural run-off into the local irrigation network.

Water conservation within the building at Kirby Street is dealt with principally by the installation of dual flush WC's. There are no domestic sized baths within the development with all rooms being serviced by en-suite showers.

### **Materials**

Wherever possible, our partner contractors and design consultants seek to specify materials, which have a limited impact on biodiversity and also on the soil quality or microclimate. A great proportion of the materials used at Kirby Street are in theory re-cyclable – from the steel frame, the aluminium window, the zinc cladding, glass and the base concrete materials. If practical, and if available, concrete is sourced using re-cycled aggregates. All timber should be FCS certified. UNITE recognise the embodied energy inherent in concrete and metal frames, however, in a building of this height, a steel frame structure with concrete floors is most appropriate in contrast to timber frame.

Many toxic materials are avoided at route during the standard Design Risk Assessments carried out by our consultants and thereby; CFC's and HFC's are avoided. Water based paints are also specified over oil based products.