# Local Plans and Climate Change APSE Energy Event Newcastle

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### Renewable and Low Carbon Energy



## Energy Efficient Buildings



### **Embodied Carbon**

MATERIALS WITH HIGH EMBODIED CARBON USE LESS OF THESE...



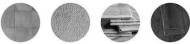




High- and average-carbon concrete



Clay tile and asphalt shingle roofing



Tile, carpet, engineered wood, and vinyl flooring



Vinyl-framed windows



Mineral wool and closed-cell rigid and spray foam insulation



Gypsum drywall interior cladding

MATERIALS WITH LOWER EMBODIED CARBON .... AND INSTEAD, USE THESE





ICF (insulating concrete forms) and low-carbon, high-SCM (supplementary/alternative cementing materials) concrete



Cedar shake and steel roofing



Softwood, linoleum, and hardwood flooring



Wood-framed and aluminum-clad wood-framed windows



Compressed straw, wood fiberboard, cork, wool, dense pack cellulose, and denim



Wood and recycled (e.g. ReWall) interior cladding



### Multi-Functional Green Infrastructure



### Sustainable Transport



### Compact and Smart Growth



## Waste and Recycling



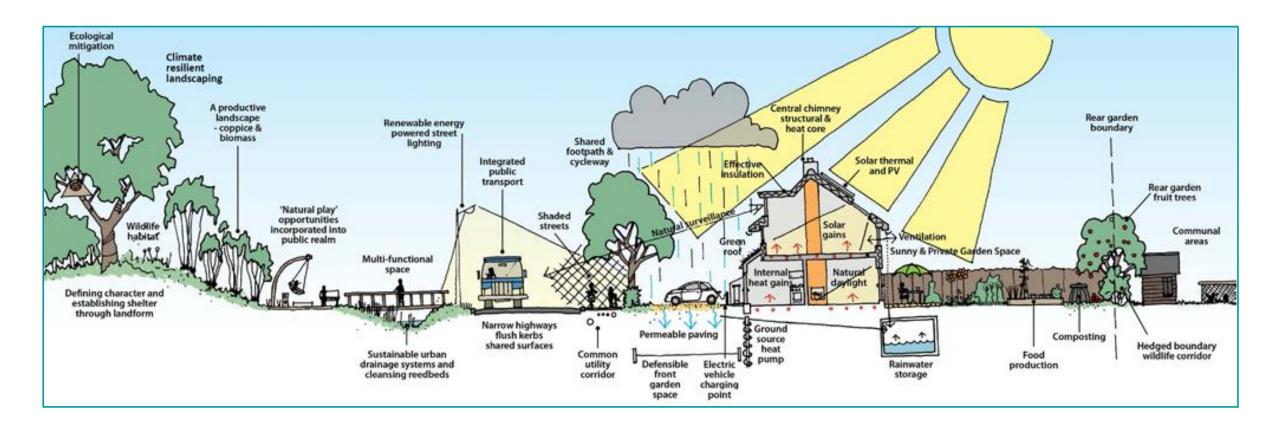




### **Climate Change Adaptation**



### Bringing it All Together





### Health and Wellbeing



### **HEALTHY NEW TOWNS - DESIGN PRINCIPLES**

Movemen

 Transport, access and movement must be planned with the following hierarchy. 1. Walking 2. Cycling 3. Public transport 4. Rail 5. Private cars, taxis and motorcycles. Facilities for those on foot or cycle must be provided in new Transport and developments and supported in existing neighbourhoods such as benches, cycle parking and adequate signage. Connectivity and safe, well lit, routes between neighbourhoods, local services and schools must be provided for new developments.

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 Healthcare, leisure, playing pitches, local services and retail must be clustered together into nodes with adequate public transport connections in local centres identified in the Local Plan · Local services, social infrastructure and local facilities must be provided in the first phases of development to establish a sense of community

. The public realm must be high quality, benefit from natural surveillance and be means to connecting communities to each other and to facilities. · Developments above a threshold of

100 units must demonstrate that there are local services and access to community facilities within 400-800 m (or 5-10 minutes walk) or that these will be created.

. New developments must ensure that there is access to good links to employment opportunities and that these are integrated into mixed-use areas wherever possible.

Econ lom New employment sites must be well connected to the walking and cycling network and the public transport system.

- . New developments must take the opportunity to employ local labour and provide training and skills through their construction.
- · Local and town centres should be supported to ensure that the local population

can be served, with an emphasis on local centres providing for community needs. · Flexibility should be built-in to new local centres to allow change of use to commercial over time.

New developments must protect, enhance and create multi-functional green-blue infrastructure to support human and natural life contributing to combatting the urban heat island effect, tackling air pollution, improving water quality and Green Infrastructure reducing flood risk. In providing green infrastructure, which should constitute 40% of the developable area the following hierarchy must be observed: 1. Habitats and Ecology

2. Flood and Water Management, and Air Quality 3. Access Recreation and Movement 4. Play and Education 5. Amenity and Landscaping Local food provision and sports facilities are to be allocated separately

> New developments must provide adequate opportunity for local food production either through the provision of private gardens, communal spaces or where there is a lack of provision identified.

 The establishment of hot-food takeways will be controlled in areas of over-concentration and where close to schools.

 The change of use of existing buildings to facilitate innovative approaches to local food production and distribution will be actively supported. Developments above a threshold of 100 units must demonstrate that there n are local services and access to healthy Ð food choices within 400-800 m (or 5-10 60 minutes walk).

 New developments must provide a legible cemaking and permeable environment that is easily understood and has clear signage and wayfinding\*. Existing neighbourhoods and the historic environment must be conserved to ensure that local landmarks and key buildings and features can be used to orientate and be familiar". · Public spaces, streets and greenspaces must benefit from natural surveillance with a lack of clutter\*

· Car parking is to be accommodated in such a way so it does not interfere with walking and cycling\*.

 The density of development must support good access to shops and services within 400-800 (or 5-10 minutes walk)\*

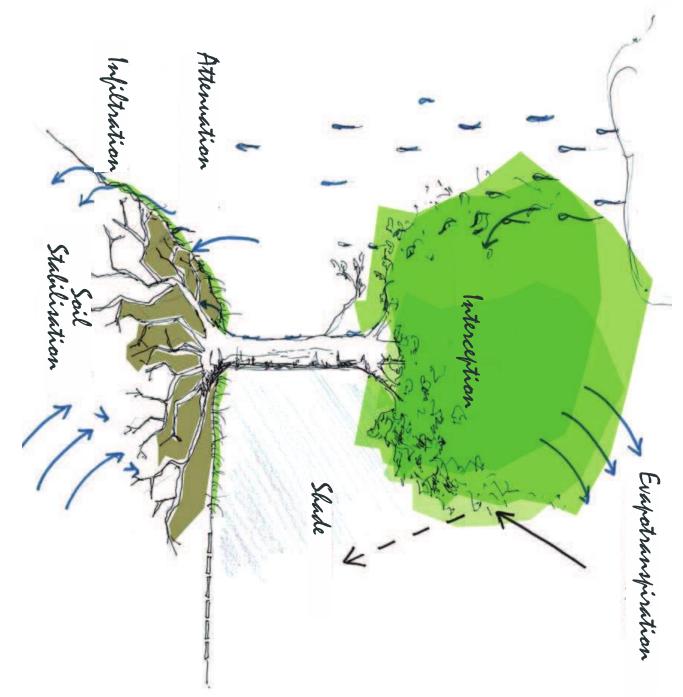
\* Denotes measures that support a Dementia Friendly Environment.





### Towards Net Zero





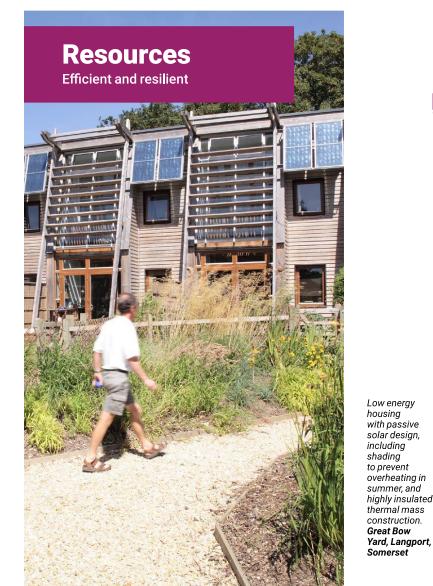
One adult tree = five air conditioning units working 20 hours/day = 11.4kWh of energy saved per day, amounting to 500 euros of energy cost saving per year (assuming a yearly energy consumption of 1000 kWh/yr)



### **Green Smart Cities**



### National Design Guide



<sup>135</sup> Well-designed places and buildings conserve natural **resources** including land, water, energy and materials. Their design responds to the impacts of climate change by being energy efficient and minimising carbon emissions to meet net zero by 2050. It identifies measures to achieve:

- mitigation, primarily by reducing greenhouse gas emissions and minimising embodied energy; and
- adaptation to anticipated events, such as rising temperatures and the increasing risk of flooding.

<sup>136</sup> A compact and walkable neighbourhood with a mix of uses and facilities reduces demand for energy and supports health and well-being. It uses land efficiently so helps adaptation by increasing the ability for  $CO_2$  absorption, sustaining natural ecosystems, minimising flood risk and the potential impact of flooding, and reducing overheating and air pollution.

- <sup>137</sup> Well-designed places:
- have a layout, form and mix of uses that reduces their resource requirement, including for land, energy and water;
- are fit for purpose and adaptable over time, reducing the need for redevelopment and unnecessary waste;
- use materials and adopt technologies to minimise their environmental impact.

**Design of New Development** Supplementary Planning Document 2011

Materials should express their structural or functional role or historic use. Unfinished concrete or concrete



### Design of New Development Supplementary Planning Document 2011

### 6.11 GREEN INFRASTRUCTURE

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**Z1** 

**Z2 LT** 

Z3 EZ

**Z2 LT** 

Z3 EZ

**Z**5

**Z4** 

Z2

**Z**3

### A. PLAYGROUND

Designed specifically for children's recreation, playgrounds should be enclosed, have limited points of access and benefit from natural surveillance from nearby roads and streets. Playgrounds should be designed not to cause noise nuisance to local residents and can be stand alone provision or integrated with other open space.



### Section 6.12

Defined by building frontages a plaza is designed for recreational, commercial or civic purposes. Trees should form part of any design. Flazas should be placed to benefit from high footfall, commercial or leisure attractions and be constructed of high quality materials. FUBLIC ART is encouraged in all plazas.

### C. GREEN SQUARE OR FUBLIC GARDEN

Squares are defined by building frontages and streets appropriate to the locality and may be used for informal recreation. Predominantly green in character, with tree cover offering habitats and shade. squares should contain seating and in areas away from the street, adequate lighting. Paths should be provided along key desire lines to facilitate ease of movement. Informal sport may be appropriate.





A larger open space partially defined by frontages and streets but may also have an interface with the countryside and green corridors. Greenspace should benefit from natural surveillance, with paths and routes accessible to all. A greenspace should incorporate a variety of open space types to promote multifunctionality and greater use during the day and evening. Informal sport may be appropriate.



### E PARK

A semi natural large open space, that may have defined boundaries close to streets and residences, but which may interface with the wider green infrastructure network. Natural surveillance should be maintained where possible with buildingsfronting the park, separated by a road or street. Informal sport may be appropriate.

### Section 6:10 E NATURE RESERVE

An area set aside for nature conservation. Appropriate access should be accommodated in all zonesto provide an outdoor classroom for all ages.



### G. GREEN CORRIDOR

Fulfilling the needs of transport and access as well as providing wildlife and habitat opportunities, corridors are appropriate in all zones as part of the green infrastructure network. Open space needs must be considered alongside recreation, transport and sustainable drainage needs In terms of natural surveillance, corridors should be treated the same way as streets in terms of building orientation. Informal sport may be appropriate.



Timber may be treated against weathering.

6.13 MATERIALS

appropriate. Section 6.7 B. STONE

C. CERAMICS

D, GLASS

E, RENDER

G. METAL

profiled.

F. TIMBER CLADDING

and as cladding materials.

Section 6.7

Section 6.7 A. BRICK

cladding panels are not acceptable.

A variety of brick types can be used but should reflect local context

and type. Bricks should be predominantly red in colour and only in exceptional circumstances should other colours be specified. All bricks

need to be agreed. The detailing of brickwork is very important. Brick

should not be used as a cladding material in panels. Reuse may be

Stone, other than in the rural context, is primarily dressed and

reserved for important buildings. Where used it is laid in courses

throughout the elevation. Stone is also used for details, creating

openings and bays. Polished stone may be used for stallrisers on

and LT, subject to heritage considerations.

shopfronts. Artificial stone should only be used for details in Z1, Z2

Terracotta, faience and modern ceramics are suitable for detailing

Other than as a window material, glass walls may be used in certain

circumstances, subject to environmental performance considerations

Subject to local context, render may be an appropriate wall finish. It

should be detailed in such a way to resist discolouration by weathering

and should not be used directly abutting the public realm as this can

encourage graffiti. In all zones, render should be white, cream or

contexts which should be identified through the design appraisal.

natural self coloured. Other colours may be appropriate in some

Timber cladding is a renewable building material, appropriate to a

Metal may be an appropriate wall finish in some contexts. Metal

cladding might take the form of smooth panels, a beaten finish or

number of contexts. Timber cladding should not directly abut the public realm and should not be painted or coated with coloured treatments.

ZI Z5

**Z2 LT** 

Z3 EZ

ZI Z5

Z2 LT

ZI Z5

Z2 L1

Z

**Z**2

ΕZ

ΕZ

**Z**5

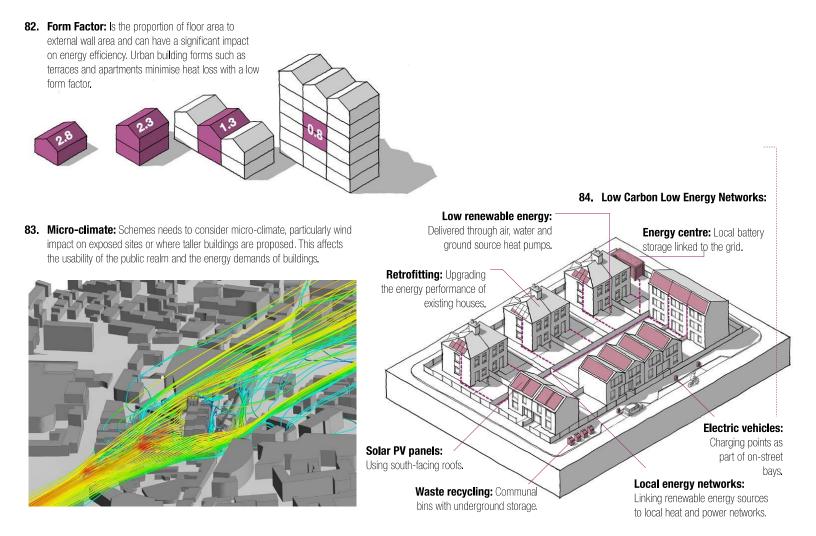
**Z**5

Z3 EZ

Z2 LT

Z3 EZ

### National Model Design Code



## Sources of Guidance

### apse energy

### **Planning for our Future**

Embedding energy and climate change into local plan policies



- Local Plan Policy Development
- The role of design guidance and SPD's
- Planning positively for renewable energy
- Energy masterplanning
- Case studies and exemplar projects

### Thank You!

**Questions and Comments**