Energy Efficiency in Building Design

Policy Type: Local Planning Policy **Policy Owner: Director Urban Planning**	**Policy No. LPP1.5** **Last Review Date: 20 September 2016**

Policy Objectives

To encourage the incorporation of environmentally sustainable and energy efficient design principles as standard practice in the development of buildings.

Policy Scope

The Policy applies to all development within the City. The Policy highlights principles of energy efficiency and environmental sustainability and encourages applicants, builders, and developers, to consider the inclusion of these elements into development proposals. The City will have regard to these principles, and the extent to which they should be taken into consideration in respect of specific development proposals, on a case by case basis.

Policy Statement

All new buildings and substantial alterations to existing buildings are encouraged to incorporate the following environmental and energy efficient design principles:

1 Building Orientation/Passive Solar Design

Buildings are to be orientated on site to ensure outdoor living areas and openings to indoor living areas face to the north. A northern orientation will ensure benefits of natural solar heating and daylight are maximized in cooler months. Conversely, negative aspects of heat gain during warmer months can be minimized.

The Council may have regard to the inclusion of features in a building design to optimize elements of passive solar design or to compensate for their omission. Relevant design features include the following:

- Building orientation so as to maximise heat gain through north facing walls and windows, whilst minimising walls and windows facing west.
- Building layout and window placement to maximise solar access/northern orientation to living areas.
- Extended eaves or other such features such as patios or pergolas located appropriately near north facing windows of habitable and living rooms to minimise excessive heat gain in summer months.

- Use of concrete slab floor and full ceiling and wall insulation help to stabilise internal temperatures minimising heat gain in hot months and heat loss in colder months.

- Other features such as verandahs, solar pergolas, sky lights, double glazed windows, awnings, double brick construction and weather stripping may also be used to optimise elements of passive solar design.

2 Solar Access

In conjunction with the provisions of the Residential Design Codes, the Council shall have regard to location or roof pitch of a development where solar access to buildings and courtyards on an adjoining lot are threatened. Particular regard will be had to the protection of solar access in strata lot development. In such cases, impact of overshadowing may be greater and more concentrated when considering the location of courtyard areas, living room windows and solar electricity and hot water systems.

3 Landscaping – Climate Control, Waterwise Gardens and the Retention of Trees

Landscaping plans required for all development shall incorporate principles of waterwise design and optimize elements of passive solar design and climate control. In terms of climate control and passive solar design, landscaping plans are to have regard to the following principles:

- Evergreen plants on the east and west side of a building to block undesirable solar radiation.

- Deciduous plants located on the north side of a building to block undesirable solar radiation in summer whilst ensuring its provision in winter.

- Densely planted shrubs on the eastern and north western sides of a building to block hot easterly winds in summer and cold north westerly winds in winter.

Landscaping plans are required to demonstrate the use of waterwise plants (as defined by the Water Corporation of Western Australia) and the incorporation of waterwise irrigation (trickle drippers and/or sub mulch irrigation with automated controllers and rain sensors.

Wherever possible and practical, significant individual trees should be preserved on private lots. Trees add value to property and contribute significantly to the amenity of the locality, providing shade, shelter from wind, habitat for wildlife and filter for air pollution and traffic noise.

4 Building Infrastructure Initiatives

The Building Code of Australia incorporates energy efficiency provisions for the design and construction of new buildings and additions and alterations to existing buildings. Notwithstanding the requirements of the Building Code of Australia, new buildings and substantial alterations and additions to existing buildings are encouraged to incorporate the following features:

Plumbed Rainwater Tanks:
Tanks and pumps to service toilet flushing, laundry, hot water service and garden are suggested.

Greywater Systems:
Systems are encouraged connecting bathroom and laundry waste water to an approved greywater irrigation area.

Solar Water Heaters:
Solar water systems to be installed as an integral and compatible feature of the roof design, preferably located so as to not be visible from the primary street.

Photovoltaic Energy Systems:
Where visible from the primary street consideration is to be given to ensuring the system is designed as an integral and compatible feature of the roof design. Systems are to comply with relevant safety and electrical requirements.

Insulation:
Insulation of walls, ceilings and/or roofs is encouraged and can significantly reduce heat transfer and minimize energy usage. Roof spaces should also be ventilated to reduce heat transfer to living areas.

Roofing:
Light roof colours reflect heat, preventing surfaces from becoming excessively hot whilst dark roof colours absorb heat which is then transferred to the home. Accordingly, light roof colours such as light greys, cream and light beige are encouraged from an energy efficiency viewpoint. Very light coloured roofing materials such as colorbond profiled sheeting in white or surfmist, and zinc coated products such as zincalume, do however, have the potential to adversely impact on occupiers of adjacent properties by virtue of the glare and reflectivity associated with them.

Fixtures, Fittings and Appliances:
Incorporation of flow regulators to kitchen and bathroom taps and shower heads and dual flush toilet systems are recommended. Energy efficient appliances are encouraged, in particular dishwashers and washing machines, to reduce energy and water usage.

5 Promotion of Energy Efficient and Environmentally Sustainable Building Design

The Council's position with respect to supporting building designs which are environmentally sustainable and energy efficient is to be promoted through the implementation of this Policy, preparation of a related public information sheet to accompany the Policy and distribution of the information to stakeholders in the building and design and construction industry.

References that may be applicable to this Policy

Legislative Requirements:	Planning and Development Act 2005 Planning and Development (Local Planning Schemes) Regulations 2015
Procedure, Process Maps, Work Instructions:	Planning Application Directorate Procedure
Other Plans, Frameworks, Documents Applicable to Policy:	Local Planning Scheme No. 6 Residential Design Codes Local Planning Policies
Delegated Authority No:	DA-020: Planning and Related Matters

ORIGIN/AUTHORITY		**Item No.**
Planning and Development Services Committee	19/03/1991	
Reviews		
Special Planning and Development Services Committee	27/06/2000	P00/1004
Ordinary Meeting of Council	11/10/2011	P11/3255
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