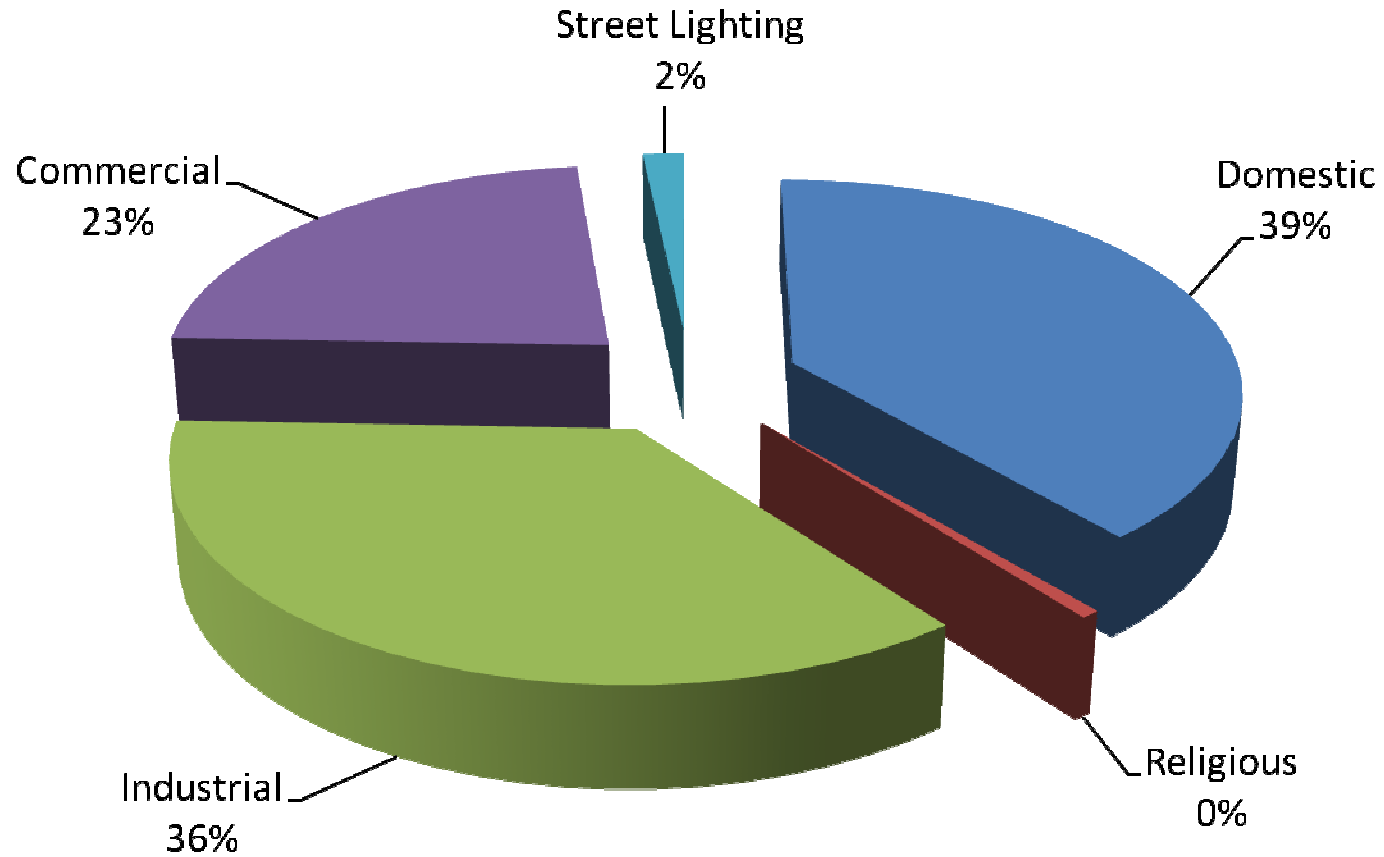


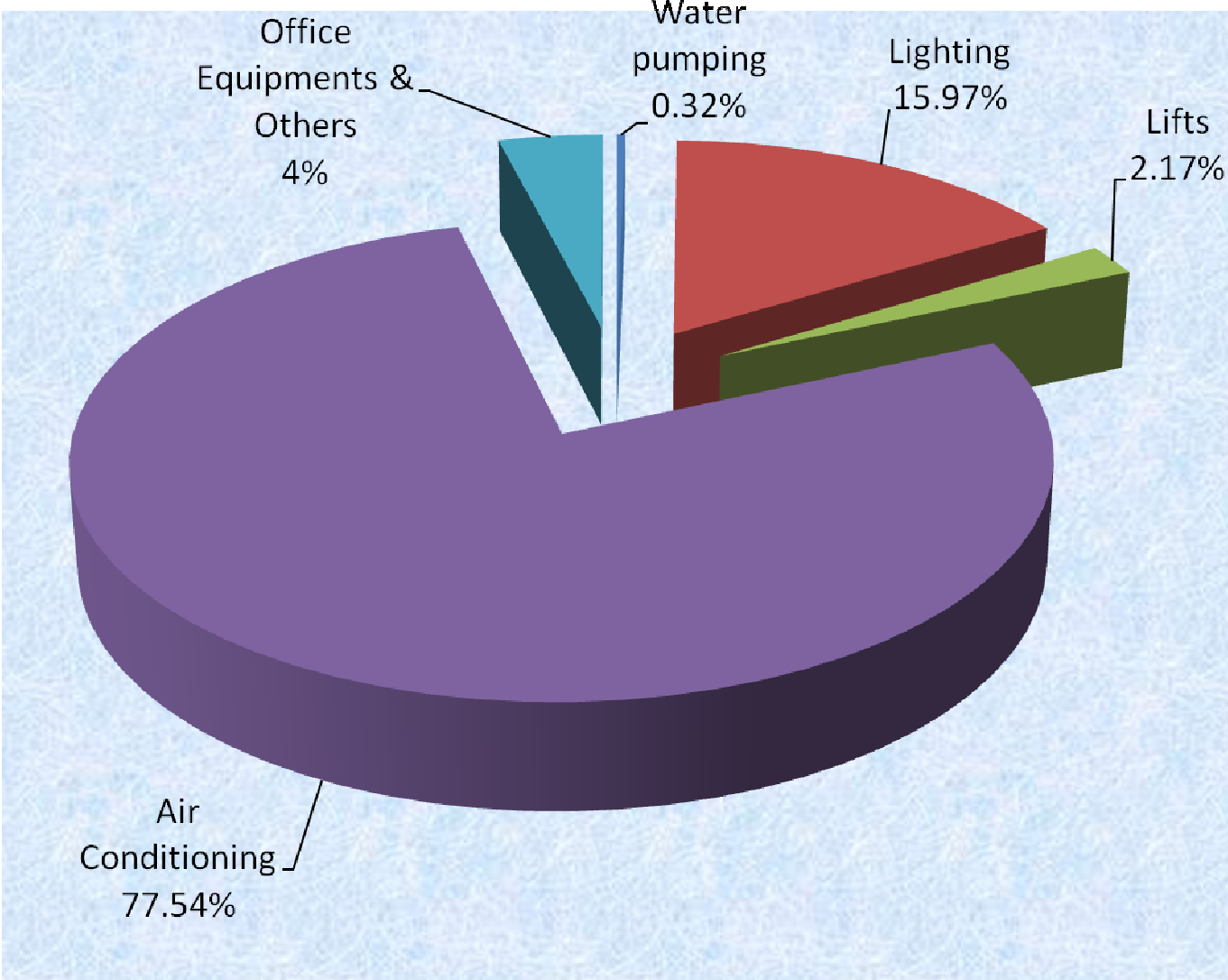
Code of Practice for Energy Efficient Buildings in Sri Lanka

M M R Pathmasiri

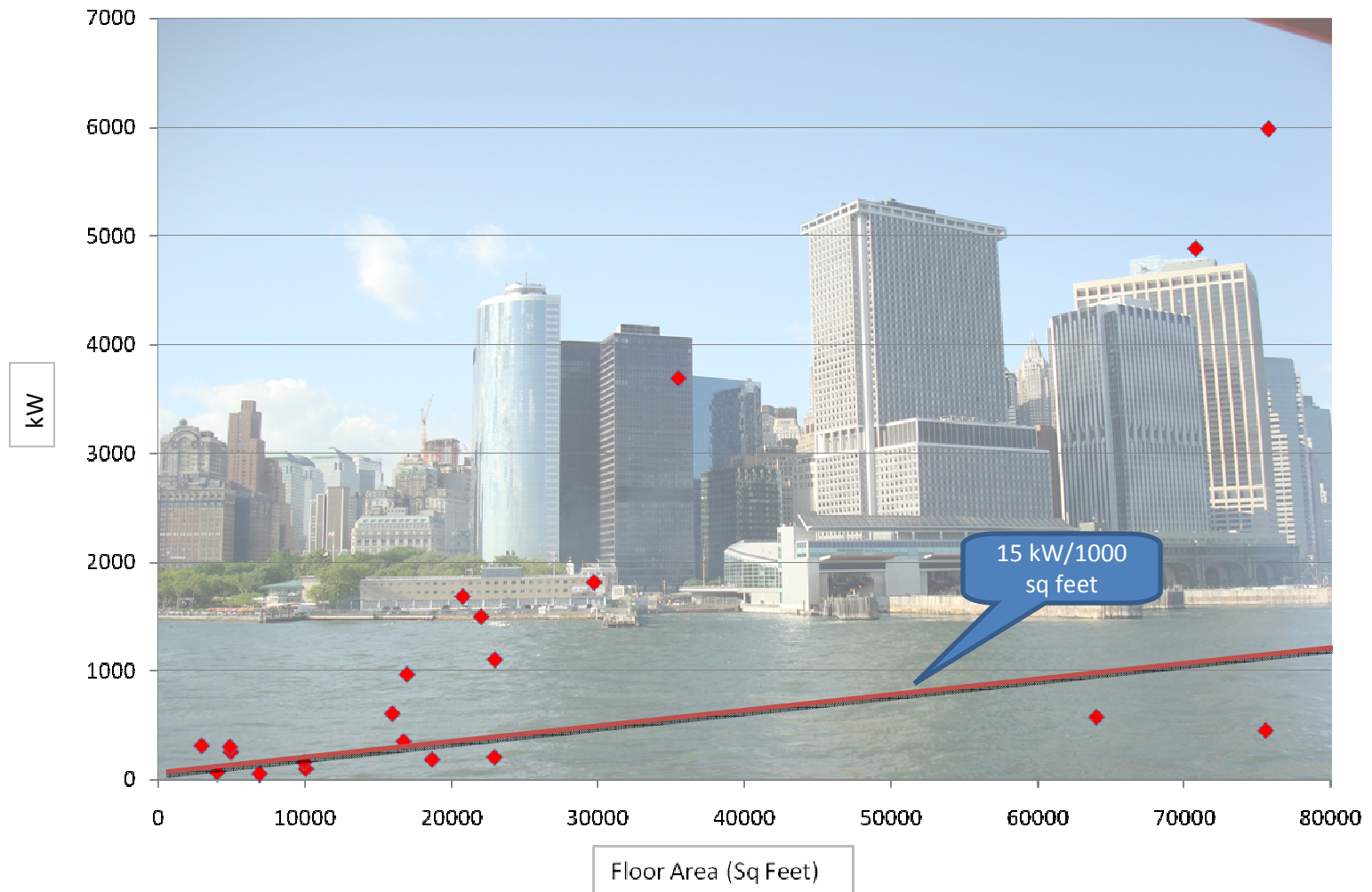
Share of Electricity Consumption

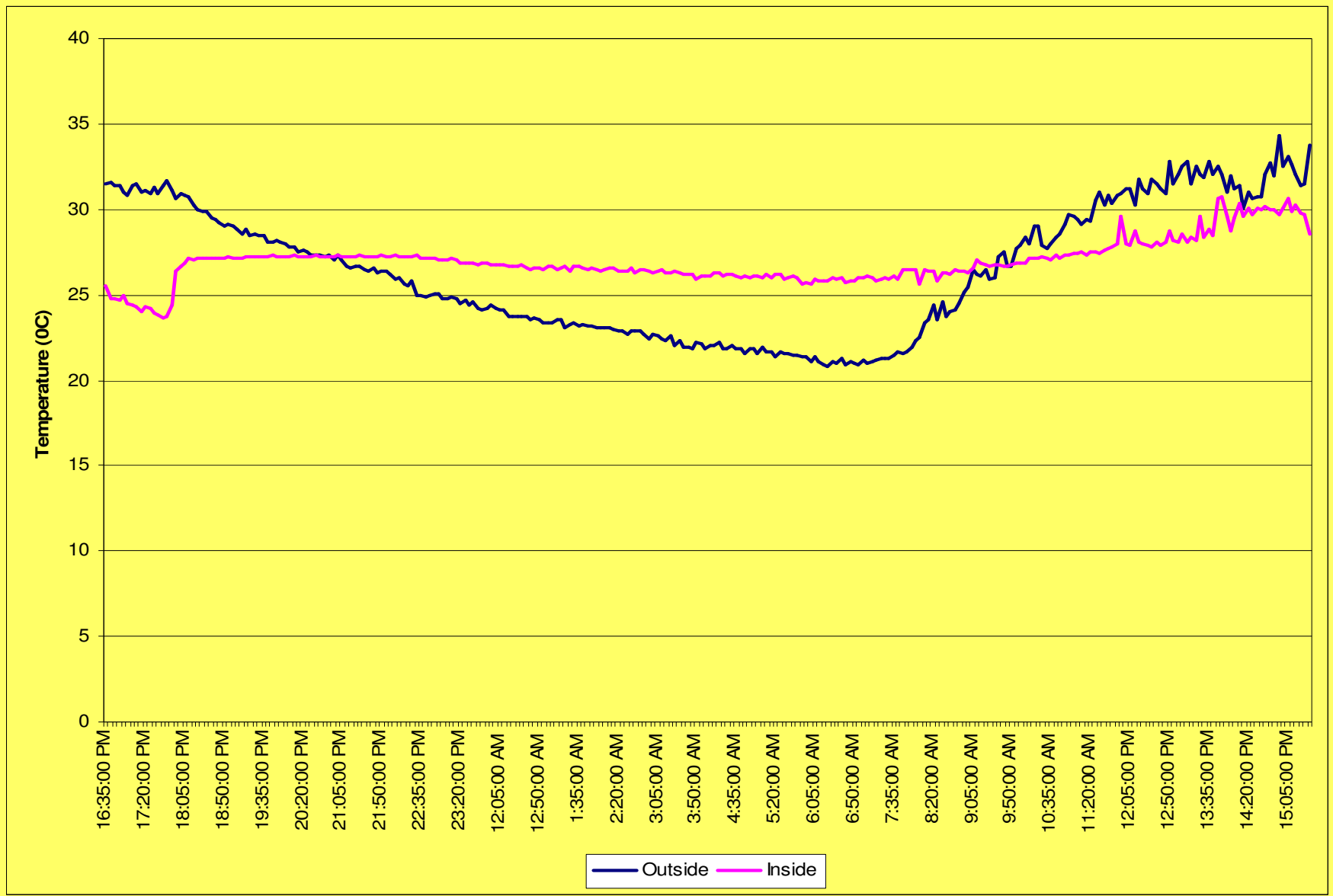


Electrical Energy Balance of a Typical Building

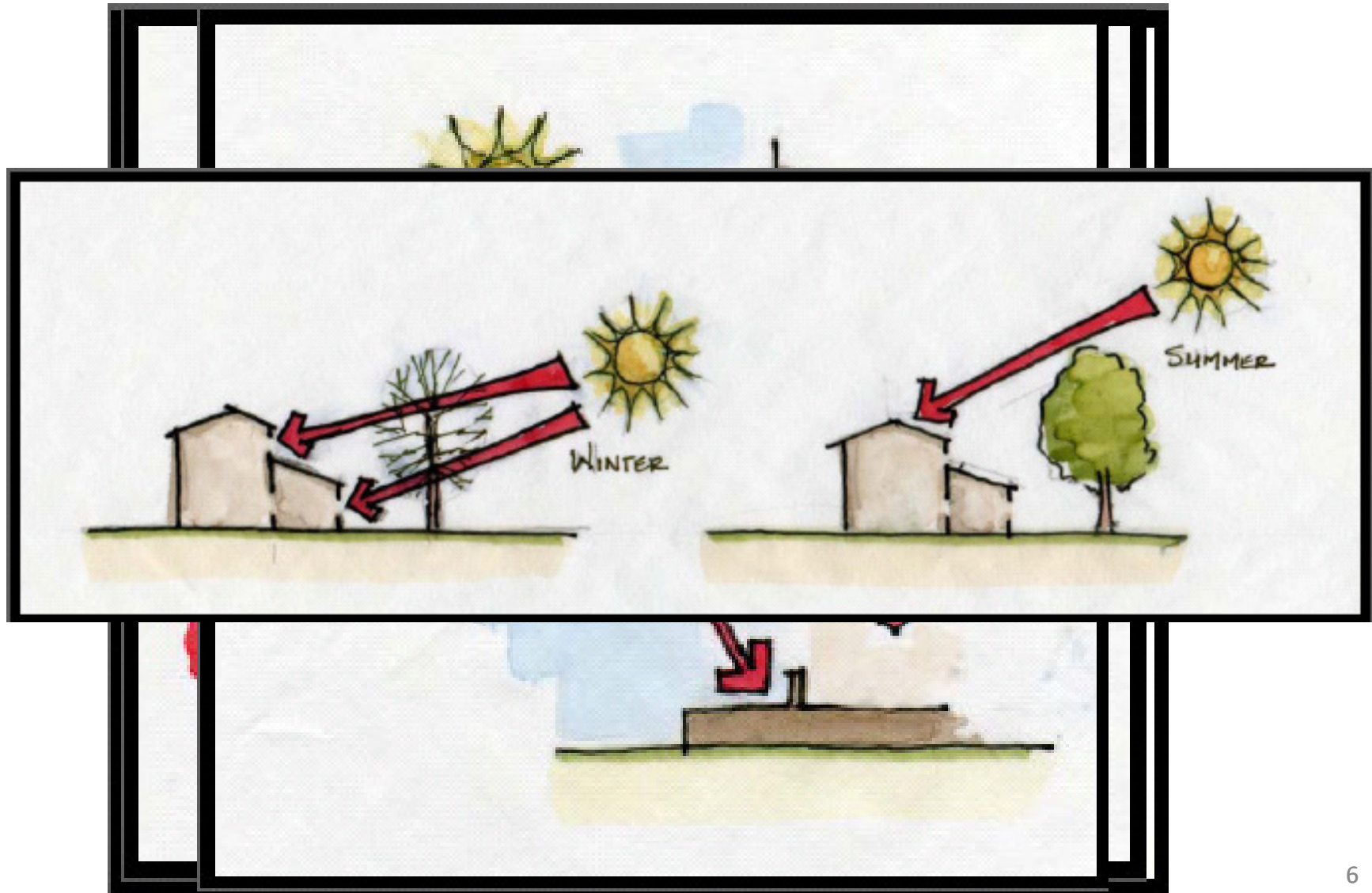


Specific Energy – Buildings





Buildings: Expression of Design with Nature



What is Energy Efficiency Building Code?

- EEBC set minimum energy efficiency standards for design and construction
- EEBC encourage energy efficient design or retrofit of buildings so that
 - It does not constrain the building function, comfort, health, or the productivity of the occupants
 - Has appropriate regard for economic considerations

ECBC Implementation in ASEAN

- Malaysia – National code
- Thailand – Voluntary (New version produced in 2003)
- Philippines – National mandatory code, but not enforced as Of 1998
- Indonesia - National voluntary standard, circa 1994, result of personal effort by Dr. Soeganto, Univ. of Bandung.
- Vietnam - Code development just completed in 2003, promulgation underway by Ministry of Construction, enforcement program not yet funded

Enforcement and Use in ASEAN

- Singapore - Only ASEAN country with strong enforcement record.
- Use may not be widespread elsewhere
- Some barriers to effective enforcement
 - Lack of strong implementation plan
 - In most cases, ECBC not mandatory. Even if mandatory, not enforced.
 - Weak enforcement of overall building code
 - Weak infrastructure for building code enforcement
 - Weak government policy support for saving energy

ECBC In India

- Mandatory Scope Covers commercial buildings
 - Connected load in excess of 500kW or
 - Contract demand in excess of 600 kVA
- Applies to New Construction only
- Building components included
 - Building Envelope (Walls, Roofs, Windows)
 - Lighting (Indoor and Outdoor)
 - Heating Ventilation and Air Conditioning (HVAC) System
 - Service Water Heating and Pumping
 - Electrical Systems (Power Factor, Transformers)

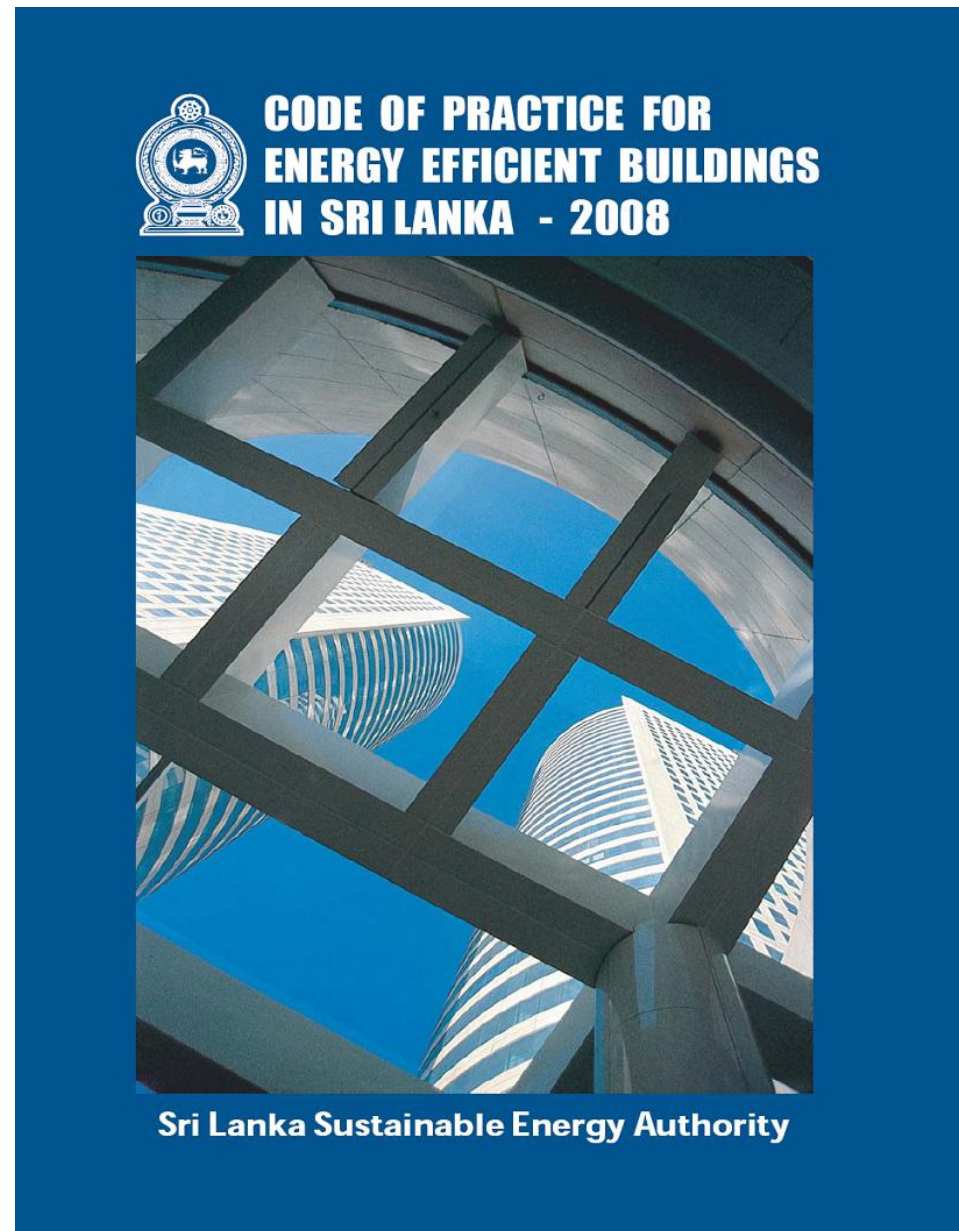
Background

- Developed in 2000 with assistance from the World Bank under ESD 1.
- Initiated by the UDA
- Managed by the CEB
- Many local experts contributed to the successful development of EEBC
- Technical expertise was provided by LBNL

Code of Practice for Energy Efficient Buildings in Sri Lanka

- First attempt was made by CEB in year 2000
- Second attempt from SLSEA, in year 2008
- References
 - Energy Conservation Building Code 2007,
Developed by BEE, India
 - ASHRAE Standards

The Government of Sri Lanka recognises that improving energy performance of buildings is an important part of the strategy of the country's sustainable energy development process. Clause 36 (g) of the Sri Lanka Sustainable Energy Authority Act No. 35 of 2007 empowers the Sri Lanka Sustainable Energy Authority (SLSEA) to specify and enforce a code of practice for buildings on efficient energy utilisation



Code of Practice for Energy Efficient Buildings in Sri Lanka

- To introduce energy efficient design and/or retrofits to commercial buildings, industrial facilities and large scale housing schemes to enable designing, construction and maintenance to be carried out under minimal energy consumption without compromising the building's function, and/or the comfort and health of occupants.
- To set criteria and minimum standards for energy efficiency in design and/or retrofits in commercial buildings and to provide criteria for determining compliance.
- To encourage energy efficiency designs exceeding minimum standards

Code of Practice for Energy Efficient Buildings in Sri Lanka

- Lighting – Typical light levels for designs
- VAC – All aspects of an EE design
- Building envelope - Design
- Electrical power – Requirements and safety
- Service water - Design

Code of Practice for Energy Efficient Buildings in Sri Lanka

- All commercial buildings, industrial facilities and large scale housing developments having one or more of the following features,
 - Four or more stories
 - Floor area of 500 m² or more
 - Electrical power demand of 100 kVA or more
 - Air-conditioning cooling capacity of 350 kW (output) or more are subject to the regulations of this code
- Includes only the energy performance and not health and safety
- Gives professional expertise in design and construction but not a design manual

Code of Practice for Energy Efficient Buildings in Sri Lanka

- The UDA, Colombo Municipal Council and other Municipal Councils in the country together with all other Local Government Establishments will be the major partners responsible for implementing these regulations from the planning stage. These organizations will here in after be referred to as Implementing Authorities.
- The Implementing Authorities will introduce an additional compliance requirement (similar to the fire code compliance) as an integral part of the building plan approval procedure

Code of Practice for Energy Efficient Buildings in Sri Lanka

- The SLSEA will formulate an incentive scheme to encourage new buildings to comply with the Code to be implemented

Way Forward

- Review the code once in two years
- Preparation of easy reference manuals (Supplement)
- Training & Capacity building
- Implementation of the regulation