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Convenor of Working Group

Overview of SS 530:2006

**Code of Practice for Energy Efficiency Standard
for Building Services and Equipment**

18 January 2007



Outline

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3. Key Revisions
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The background consists of several overlapping, semi-transparent, curved shapes in various shades of green, ranging from light lime to a darker, more saturated green. These shapes create a layered, organic effect. Centered on this background is the word "Background" in a bold, blue, sans-serif font.

Background

Background

- ❑ SS CP24 (*Code of Practice for energy efficiency standard for building services and equipment*) was last revised in 1999
- ❑ Advances in technology have led to improvements in energy efficiency of equipment
- ❑ Base reference standard ASHRAE 90.1 was revised and published in Nov 2004
- ❑ Timely to review SS CP24 to keep abreast of international standards in energy efficiency

Background

The Revision

- ✓ Apr 2005 – Working Group started
- ✓ Aug 2005 – Industry Consultations
- ✓ May 2006 – Resolution of Public comments
- ✓ Oct 2006 – Revised Draft for 2nd round of Public review
- ✓ Dec 2006 – Standards Council approval
- ✓ Jan 2007 – Public release

The Working Group

Convenor:

- Mr Ram Bhaskar

Members (technical experts):

- ✓ *Mr Abdul Rashid b Ibrahim*
- ✓ *Mr Bok Chee Meng*
- ✓ *Mr Leow Kok Chong*
- ✓ *Mr Ong Chau Tuang*
- ✓ *Mr Phua Hong Aik*
- ✓ *Assoc Prof Chandra Sekhar*
- ✓ *Assoc Prof Wong Yew Wah*



Scope

Scope of SS 530:2006

- ❑ Provide minimum efficiency requirements for
 - New installation of systems and equipment in buildings
 - Replacement of systems and equipment of buildings
 - Replacement of components of systems and equipment in buildings

- ❑ The provisions of SS 530:2006 apply to
 - Air-conditioning equipment
 - Heat rejection equipment (cooling towers)
 - Water heaters
 - Motor drives
 - High efficiency lighting

Key Revisions

Key Revisions

Table 1 – Unitary air conditioners and condensing units

- ❑ Air conditioners, air cooled (<19kW)

Sub-category or rating condition	Minimum efficiency	Test procedure
Inverter system	3.37 COP	JIS C 9612
Non-inverter	2.49 COP	ISO 5151

- ❑ Alignment with the Energy Labeling Scheme jointly administered by NEA and SEC



Key Revisions

Table 2 – Water chilling packages

Equipment type	Size category	SS CP24	SS 530	Improvement
Air cooled, with condenser, electrically operated	< 527.5 kW	2.7	2.8	4%
	≥ 527.5 kW	2.5	2.8	12%
Air cooled, without condenser, electrically operated	All capacities	3.1	3.1	0%
Water Cooled, electrically operated, positive	All capacities	3.8	4.2	11%
Water cooled, electrically operated, positive displacement (Rotary Screw and Scroll)	< 527.5 kW	3.8	4.45	17%
	≥ 527.5 kW < 1055.1 kW	4.2	4.9	17%
	≥ 1055.1 kW	5.2	5.5	6%
Water cooled, electrically operated, centrifugal	< 527.5 kW	3.8	5	32%
	≥ 527.5 kW < 1055.1 kW	4.2	5.55	32%
	≥ 1055.1 kW	5.2	6.1	17%
Air cooled, absorption single effect	All capacities	0.48	0.6	25%
Water cooled, absorption single effect	All capacities	0.6	0.7	17%
Absorption double effect, indirect-fired	All capacities	0.95	1	5%
Absorption double effect, direct-fired	All capacities	0.95	1	5%

Key Revisions

SS CP24:1999

Table 3 - Packaged terminal air conditioners and room air conditioners

- ❑ Packaged terminal air conditioners and room air conditioners are no longer featured

SS 530:2006

Table 3 - Heat rejection equipment

- ❑ Minimum efficiency requirements introduced for
 - Propeller or axial fan cooling towers
 - Centrifugal fan cooling towers

Key Revisions

Table 6 – General purpose motors

- ❑ Table 6 specifies the minimum nominal efficiency that should be considered
- ❑ Continuous use
 - Definition: Motors used more than 2,900 hrs per year
- ❑ Occasional use
 - User to work out balance between cost and efficiency

Concluding Remarks

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- ❑ More efficient equipment and building services translate to
 - Lower energy costs for building owners and operators
 - Improved competitiveness in times of rising energy prices
 - Lower emissions of pollutants and greenhouse gases from energy production
- ❑ The introduction of SS 530 is an important contribution by SPRING in supporting Singapore's efforts towards greater energy efficiency
- ❑ SS 530 will help Singapore keep abreast with technological advancements and trends in developed countries
- ❑ The challenge is for engineers to design and operate highly energy efficient building systems that incorporate the new standards

Thank You