

Capitoline Alumni®

www.capitoline.org

Winter 2010/11 Newsletter

Welcome to the second edition of our Capitoline Alumni newsletter. Over 400 people from 120 companies across 30 countries have attended Capitoline data centre training over the last four years. I hope you will use this group as an opportunity to maintain this network of like-minded contacts and keep up to date with activities from Capitoline. We also welcome the 180 people that have attended the Capitoline sponsored IET data centre engineering seminars held in the UK, Dubai, Gibraltar and Ireland.

New data centre standards

Our data centre training has been updated to take into account another four major standards developments in 2010. These are;

EU Code of Conduct—Best Practices document, 2011 edition

Data Center Energy Efficiency Framework (DCEEF), the Green Data Center Alliance, November 2010

US Department of Energy data center energy efficiency program, October 2010

Carbon Usage Effectiveness (CUE): A Green Grid Data Center Sustainability Metric , December 2010

Check our download page for copies of some of these documents http://www.capitoline.co.uk/hot_topics.html

Some of the main changes we have seen in these standards are;

EU Code of Conduct—Best Practices document, 2011 edition

No	Name	Description
4.3.1	Audit existing physical and service estate	Audit the existing physical and logical estate to establish what equipment is in place and what service(s) it delivers.

One change is the widening of the categories that apply to data centres as seen in the table below.

Category	Description
Entire Data Centre	Expected to be applied to all existing IT, Mechanical and Electrical equipment within the data centre
New Software	Expected during any new software install or upgrade
New IT Equipment	Expected for new or replacement IT equipment
New build or retrofit	Expected for any data centre built or undergoing a significant refit of the M&E equipment from 2010 onwards
Optional practices	Practices without a background colour are optional for participants

The new *Best Practice* is a large document at 40 pages and will take quite a bit of study. One major item is the requirement to greatly extend temperature and humidity range in 2012 to meet the ETSI standard.

Where appropriate and effective, Data Centres can be designed and operated within the air inlet temperature and relative humidity ranges of 5°C to 40°C and 5% to 80% RH, non-condensing respectively, and under exceptional conditions up to +45°C as described in ETSI EN 300 019, Class 3.1.

It remains to be seen how practical this is. Will IT equipment manufacturers support this? Will they still warrant their equipment within these parameters? ASHRAE themselves point out that when IT equipment is fitted with variable speed fans then power consumption goes up dramatically above 25°C. ASHRAE give an example where a fan going from inlet air of 25°C to 35°C takes over 500% more power to achieve the same cooling effect.

The Carbon Usage Effectiveness metric uses a conversion factor to give an indication of how much carbon dioxide is produced by the data centre operations. The conversion factors are published by governments and are different for different countries because it depends upon the national mix of energy production through, gas, coal, nuclear, wind etc.

$$CUE = \frac{\text{CO}_2 \text{ emitted (kgCO}_2\text{ eq)}}{\text{unit of energy (kWh)}} \times \frac{\text{Total Data Center Energy}}{\text{IT Equipment Energy}}$$

LOW CARBONCONSULTANTS

Capitoline, as registered CIBSE Low Carbon Consultants, are uniquely placed to make this measurement and calculation in the data centre environment.

A survey by the [Data Center Professionals Network](#), of Data Centre training courses revealed ten companies offering training but when you strip out the “free” manufacturers’ training, country specific and franchises it seems there are about three internationally recognised qualifications of which the Capitoline Data Centre Expert certification is one. We maintain that our course is unique because it is the only one that is run by practicing data centre engineers and adopts a full range of international standards.

Other Capitoline News

Capitoline has introduced Thermal Imaging as an optional part of our audit service. Using Forward Looking Infra Red (FLIR) camera techniques developed for the military we can see all data centre hot spots (and unexplained cold spots) in one easy to interpret photograph.

Data Centre Expert certification DCE
Data Centre Design - DCD
+
Data Centre Operational Management - DCOM
= DCE

DCD + DCOM = DCE, Data Centre Expert. All our courses are recognised by BICSI for Continuing Education Credits (CECs) and for professional engineers they count as Continuing Professional Development (CPD) via the CIBSE scheme. [CIBSE](#) is the Chartered Institute of Building Services Engineers. Under the [Washington Accord](#) most countries in the world have agreed to recognise each other’s professional engineering accreditation programmes which make Capitoline CPD internationally accepted.

Please contact at us at any time

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The Chartered Institution of Building Services Engineers