



LIGHT

the official

NEWSLETTER

of the Indian Society of Lighting Engineers

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FROM THE PRESIDENT'S DESK

It has been a busy and fruitful quarter as we go to press with the July issue.

I have just returned from the launch of the Rajasthan State Centre in Jaipur. The next issue of the newsletter will carry a detailed report on the excellent programme organised for the launch, We have added an enthusiastic and vibrant chapter to ISLE.

And shortly before that I was at the 6th Lux Pacifica conference in Thailand. While there is a write up by Mrs. Stephanie Rogers Julian on page 19 on the Lux Pacifica conference, I have also put down a few points I would like to share with members which you will find on page 4.

And now as I write this I am leaving for a five week trip to Europe and the US. I will be sharing some of what comes out of this trip with you in my column in the next issue.

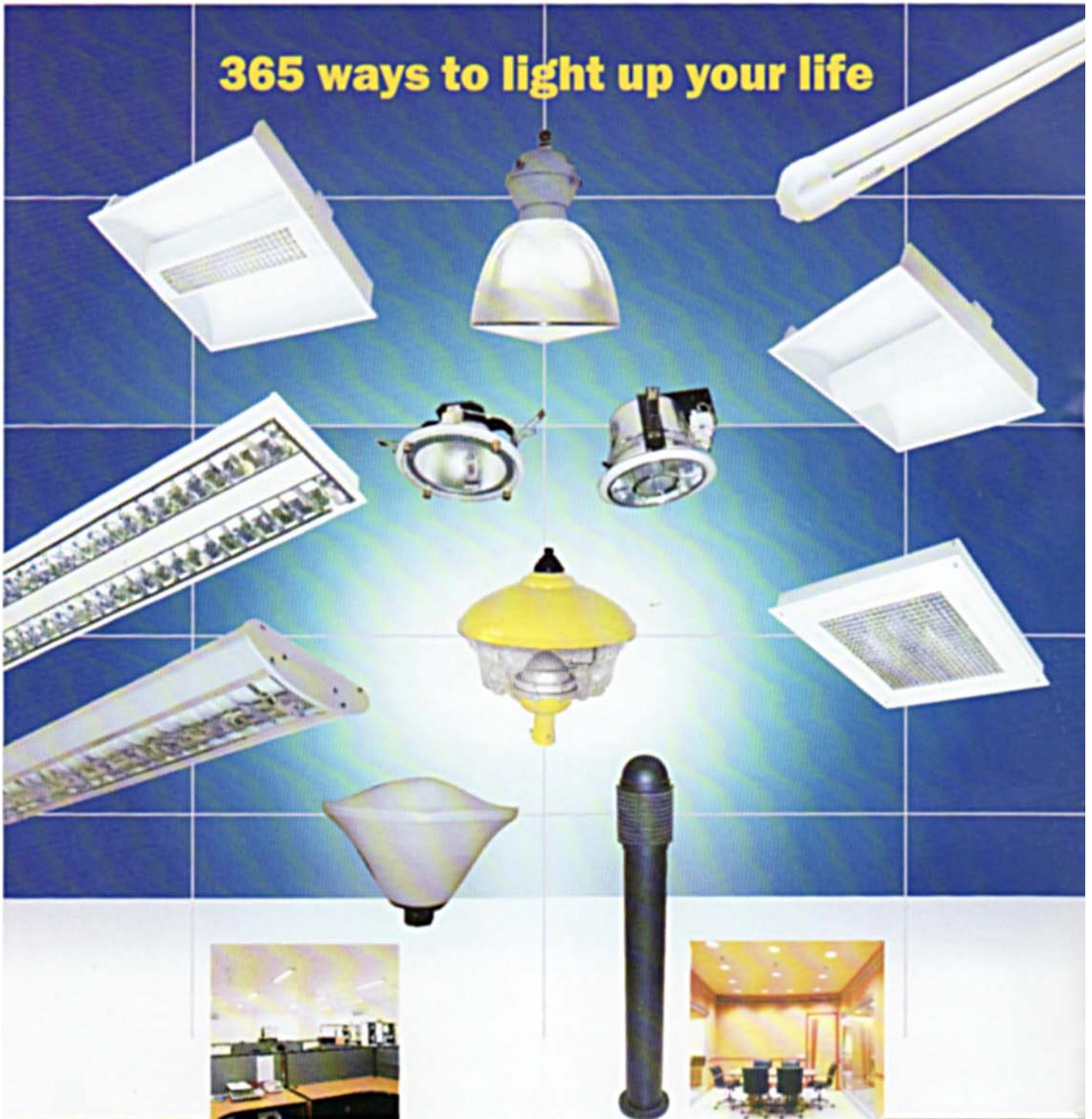
Things are looking good at ISLE. At the recent Governing Body meeting in Jaipur, we have decided to take steps to promote lighting to a larger constituency of users through a lighting education programme. This will also lead to the development of a web based lighting course. As soon as details are worked out an announcement will be made.

We have also decided that the Silver Jubilee year that starts in November will be celebrated with special programmes in all State and Local Centres. It will be an opportunity to project our Society. Details are being drawn up and will be available in the next issue.

While in the US I will be visiting LRC and hope to take forward in a bigger way the collaboration that ISLE and LRC have had over the last few years.

As I have pointed out earlier we need to be more actively involved in international lighting activities. We are fortunate to have Mr. S. Venkataramani as Vice President

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on the CIE Board of Administration and we must offer him our fullest support. Please read his report under ISLE Activity.

As always I look forward to feedback and ideas from you.

Avinash D Kulkarni
President
dradk@hotmail.com

EDITORIAL

In this issue you will find reports from both the President and Past President on their interaction at international lighting forums. And both have been stressing the need for enhanced involvement of members in international lighting activities. Earlier this was also emphasised by Mr. P.K. Bandyopadhyay when he was President of ISLE and Director CIE India Committee and in fact he took active part in CIE Division 5 by chairing 2 TCs and functioning as the Division Editor.

It is a pity that the recent Lux Pacifica conference organised, against heavy odds by Warren and Stephanie Julian had only one ISLE member in attendance.

For those with an interest in lighting design the second PLDC conference which ISLE is supporting is scheduled for October this year in Berlin (see page 23). Next year CIE is organising a conference on Lighting Quality and Energy Efficiency and I do hope that there will be several ISLE members attending and contributing papers.

From the reports you will find that there is an induction of new blood in ISLE with the launching of the Rajasthan State Centre and the election of new Committees at Kolkata, Delhi and Karnataka State Centres. This is certain to translate into an increase in the activity level. The report on the launch at Jaipur will be carried in our next issue.

This issue carries reports on some of the prizewinning projects from this year's IALD awards. We would very much like to publish information on outstanding lighting design projects in India as well, but in spite of repeated requests we have not received any material for publication. Please send us reports and photographs for publishing.

You will find a brief but interesting article by Howard Brandston on the issue of banning the GLS lamp. He has given links for those who wish to do further reading on this subject. There is also a paper on the use of control networking technology.

H.S. Mamak
Editor

ISLE ACTIVITY

CIE India Committee

ISLE Past President, Mr. S. Venkataramani who is a Vice President on the CIE Board of Administration attended the CIE Midterm Meeting and the Light and Lighting Conference 2009 at Budapest in May. Below is a brief report on his visit as well as participation in other CIE BA meetings.

The Midterm session of CIE was held in Budapest during the week of 25th May 2009. The meeting of the Board of Administration was held on the 25th May and the General Assembly was on the 26th May. During this session the CIE Office Bearers for the term 2011 – 2015 were elected. I am pleased to report that my term as Vice President has been extended and I have been tasked with the Marketing responsibility for CIE.

The Midterm session was followed by a three day Conference titled "Light and Lighting 2009" organised by CIE – Hungary with the sponsorship of the Lighting Society of Hungary and University of Pannonia, and held under the auspices of the CIE, from 27th to 29th May 2009. The entire program was with "Special Emphasis on LEDs and Solid State Lighting".

Last year as Vice President on the Board of Administration of CIE, I participated in the "CIE Board Strategic Planning Session" held in the office of Central Bureau in Vienna on the 16th of September 2008. This session was chaired by our President Mr. Franz Hengstberger and was conducted with the help of an external Consultant. The theme of this session was to "Identify Current Major Issues Facing the Organization and Strategise a Way Forward". Several important issues were discussed and successfully concluded during this exercise such as:

- Roles and Responsibilities of the Board Members and CB Staff.
- Enhancing the image, awareness and relevance of CIE
- Formalising relationships with other international Organizations
- and so on.

The Board of Administration meeting was held on the 17th September 2008 and during this session I made a detailed presentation on the ISLE activities, which was well received. Encouraging remarks were made by the Board members on our activities and the membership base. As a follow up to this meeting the CB kicked off a "Supportive Membership Campaign" to increase CIE membership base. I have been given the responsibility to carry through this initiative in the Asia-Pacific Region.

Coming to our ISLE activities, in the context of our role as National Committee of CIE in India, I would urge that we need take much more active participation in the various Technical Committees of the seven Divisions. As a developing Nation we have a lot to contribute to the different TCs. We should also take part in a noticeable manner in all the International Conferences and other events of CIE and other bodies related to Light and Lighting with Paper/Poster presentations of high quality and so on. This is also an expectation of the CIE Board. I would focus my efforts in realizing this ambition and I seek cooperation from all of you to take ISLE to the forefront of CIE.

S. Venkataramani

President's Visit to Lux Pacifica Conference

The 6th Lux Pacifica held at Holiday Inn hotel in Bangkok was a worthwhile experience for me. Here are some salient points I wish to share with you all.

1. This conference was to be hosted by the Russian IES in Khabarovsk in far eastern Russia. But because of the world financial crisis they were unable to do so. With barely two months to go the venue was shifted to Bangkok and The Thai Illuminating Engineering Association (IEAT) took up the responsibility to host the event. Besides IEAT, Dr. Warren Julian (current President of Lux Pacifica) and his wife Stephanie worked full time to make the event possible.
2. There were almost 100 delegates. I was the only one from a SAARC country. Delegates were from Japan, Korea, China, New Zealand, USA, Singapore, Thailand, etc. The attendance was less than normal because of the change of conference venue.
3. You may recall that ISLE had hosted the 4th Lux Pacifica event in Vigyan Bhawan in September 2002. Along with the Lux Pacifica we also had our Lii2002 at Pragati Maidan. I made an attempt in the BOD meeting to have the next (7th) Lux Pacifica in India but did not succeed (see item 6 below).
4. After the reception on 23rd evening, the conference was for two full days with presented as well poster papers. Besides the opening session on 24th morning and closing session on 25th evening, all other technical sessions were running in parallel, two sessions at a time. There were sessions on 1. Vision and Colour (two), 2. Daylighting (two), 3. Lighting Education, 4. Road Lighting (two), 5. Energy Efficiency (two), 6. LEDs, 7. Lighting Equipment, 8. Interior Lighting.
5. On 25th morning I presented a paper entitled "Energy Saving in Lighting in India" on behalf of Mr. Mamak. It was well received.

6. On 25th afternoon we had the Board of Directors meeting. With exception of Hong Kong and South Africa all other seven country heads (USA, Australia & New Zealand, Japan, Russia, Thailand, China, and India) were present in the board meeting. I was representing Mr. Mamak on behalf of India. There were several resolutions proposed by Mr. Mamak. They were appreciated by all members and were discussed in detail. Mr. Mamak had also proposed that Dr. Julian continue for another term as the President of Lux Pacifica which was passed unanimously. It was also resolved that the next event, the 7th Lux Pacifica will be held in Thailand.
7. The theme of the 6th Lux Pacifica was "Light without Borders". I have a hard copy and a CD of all the presented and poster papers. I could make the CD available at least at all State Centres of ISLE.
8. Perhaps the most important paper from ISLE's point of view was presented by Dr. Acharawan Chutarat, Instructor / Graduate Programme of School of Architecture and Design, King Mongkut's Univ. She holds a Ph.D from MIT and I met another faculty member from the same University Dr. Chanyaporn Chuntarama, Ph.D from Bartlett College in London. Dr. Chutarat presented a paper entitled "Efficient Lighting Management Curricula for ASEAN: Lessons Learnt from Its Development and Testing Processes".
9. During the concluding dinner by the poolside in Holiday Inn Dr. Chutarat indicated that she would like to hold a meeting of Lighting educators from China, Thailand, Korea and India. Dr. Hao Luoxi, Professor of Tangji Univ. also endorsed the idea. I too assured them that ISLE would sponsor lighting educators for the meeting.

Together with the witeup by Mrs. Stephanie Rogers Julian on page 19 this will give you a glimpse of the 6th Lux Pacifica.

Avinash D. Kulkarni

Technical Booklets

ISLE has decided to publish technical booklets on various subjects of interest to lighting users. The first in this series will be on the subject of Office Lighting. The Governing Body has decide that this task will carry an honorarium.

Potential authors who feel that they have the expertise and resources to carry out this task, please contact with background information and credentials:

President, ISLE at isledel@vsnl.com

KOLKATA STATE CENTRE

Technical Programme

April 30, 2009, Kolkata

A joint programme with SISED, JU and IEEE, Power Engg. Chapter, Kolkata was organised at Dr. Triguna Sen Auditorium, Jadavpur University, Kolkata.

The speaker Prof. (Dr.) Saifur Rahaman, Director, Advance Research Institute, Virginia Tech. University, USA presented two papers. They are 'Promotion of Solar Home Lighting Systems – Technology and Policy Options' and 'An Introduction to Smart Grid at the Distributed Level.'

Election of State Centre Committee for 2009 – 2011

The election process of the State Centre Committee was completed in the month of May, 2009. Mr. R. K. Bhandari was the Convenor, Board of Scrutineers. The following members were elected uncontested:

Mr. Bipin Dattani	- F.0338(L)
Mr. Prakash K. Chatterjee	- F.0397(L)
Ms. Saswati Mazumdar	- F.0435(L)
Mr. Alok K. Basu	- F.0537(L)
Mr. Nikhilesh De	- F.0628(L)
Mr. Amitabha Sanyal	- M.1288(L)
Mr. Samridha Chatterjee	- M.1397

The members of the new State Centre Committee (2009 – 2011) met on 23.05.09 and elected the office bearers as mentioned below:

Mr. Prakash K. Chatterjee	- Chairman
Mr. Nikhilesh De	- Secretary
Mr. Amitabha Sanyal	- Treasurer

Technical Lecture

June 26, 2009, Kolkata

A lecture meeting was organised at R.N. Mukherjee Hall of the Institution of Engineers, Kolkata before the 21st AGM of the State Centre. Mr. Subhankar Das, Executive Engr. (Elect.), PWD, West Bengal spoke on 'Light and Energy'.

Annual General Meeting

June 26, 2009, Kolkata

The 21st AGM of the State Centre for 2008 – 2009 was held at R. N. Mukherjee Hall of Institution of Engineers, Kolkata. The meeting was attended by 44 members. Apart from the usual business the new State Centre Committee (2009 – 2011) took over charge in the AGM. The meeting was followed by dinner.

DELHI STATE CENTRE

Annual General Meeting

May 8, 2009, Delhi

The AGM of Delhi State Centre was held at the India Habitat Centre in New Delhi on May 8, 2009.

The Chairman of the State Centre, Mr. N. Nagarajan presented the Annual Report and Statement of Accounts which was approved by the members.

After the AGM Mr. Nagarajan introduced the newly elected members of the State Centre Committee and handed over the dais to the new Chairman Mr. A.K. Jain, Secretary, Mr. Sudesh Gupta and Treasurer, Mr. H.R. Vaish.



The new Office Bearers

This was followed by a technical session. The first speaker was Dr. Satish Kumar who heads the USAID ECO-III Project and is also a Scientist at the Lawrence Berkeley National Laboratory. A leading international expert in the field of building energy efficiency, he works very closely with the Bureau of Energy Efficiency. His riveting lecture on energy efficient buildings covered the macro picture, the issues relating to energy codes, examples of white roofs and the whole question of benchmarking and labeling. He pointed out that there was great potential for remedial action in as much that 70% of the commercial buildings that will be there in 2030 have yet to be built. His presentation addressed the kind of policies needed and how to translate these into action and implementation as well as the need to avoid repeating the mistakes made by other countries.



Dr. Satish Kumar

His presentation is available at the following link:
<http://www.eco3.org/downloads/ISLE-ECBC.pdf>

The second presentation on the Art of Floodlighting by Ms Harvinder Kaur, Strategic Application Manager, Thorn

Lighting revealed how exterior lighting could be used for the decoration of urban spaces, both natural or landscaped as well as ancient and contemporary buildings.

Revealing a subject by illumination requires the creation of contrast. The purpose of creating these contrasts is to reveal the beauty of form and structure and to give new interpretation of the surfaces and volumes. The balance of light and shadow creates a form of beauty not always evident during the daytime.

To illustrate her ideas, Ms Harvinder Kaur presented a case study of the lighting of the Antwerp Royal Museum of Fine Arts. This project was undertaken with a view to conserving energy as well as by taking an artistic approach to convey the importance of the building and the artifacts in a light and shadow rendition. Most of the building is only outlined by sufficient light whereas three dimensional effects and the grandeur of the building are brought into strong focus by the lighting of the Corinthian columns. The architect wanted to create a hierarchy of illuminance without overlighting while paying special attention to the focal points. This was a good example of an energy saving floodlit building with its unique architectural features intact.

She highlighted the need to keep in mind the CIE recommendation (in Pub. No. 94: 1993) that Floodlighting must not “drown the subject in the sea of light”. She also emphasised the need to keep the focus on saving the cost of energy rather than the cost of the product.



Ms. Harvinder Kaur

The presentations were followed by dinner.

JAIPUR LOCAL CENTRE

Seminar on Energy Efficient Lighting

April 24, 2009, Jaipur

ISLE Jaipur Local Centre organised a Technical Seminar on April 24 at the PWD conference hall in Civil Lines in Jaipur. The following topics were covered in the seminar:

- LED lighting applications
- Benefits of quartz technology in metal halide lamps
- Testing of construction material

Eminent speakers from industry presented their views on the subjects. Enlightening and fruitful discussion took place during the seminar which was attended by high-ranking officials and engineers primarily from PWD, REIL



Messrs. S. Dakshini, A.K. Jain and R.S. Saxena

and Industry. Looking to the presence of engineers with a civil background, “testing of construction material” was included as a topic.

The Chief Guest for the seminar Mr. D.K. Goyal, IAS, Principal Secretary PWD, Govt. of Rajasthan enjoyed the presentation and interaction. In his inaugural address he emphasised the need to use efficient lighting and thanked Mr. D.K. Goyal ISLE for conducting this seminar.



The gathering was welcomed by Er. R.S. Saxena, Chairman ISLE Jaipur Center and Er. A.K. Jain, Hon. Gen. Secretary, ISLE Jaipur, gave the vote of thanks. In his concluding address he urged all engineers to spread the message of saving energy by using efficient luminaries and lighting technologies and thanked the Chief Guest, senior officials of PWD for gracing the event and other delegates for sharing their time and ideas.

The technical seminar was followed by a meeting of all members of ISLE Jaipur Local Centre.

Workshop and Symposium on Lighting Design

May 13, 2009, Jaipur

ISLE Jaipur Local Center successfully organised a half day workshop and symposium on “Lighting Design” on 13.05.2009 at the campus of Jaipur Engineering College, Kukas, Jaipur-Delhi Highway. It covered the aspects related with photometric design achieved with the help of new computer software instead of conventional methods used in illumination design. The workshop was attended by III/IV year electrical engineering students, faculty and ISLE members.

The Workshop focused upon educating the engineering students about the lighting industry – needs, wants and opportunities.



Mr. A.K. Jain

Dr G.D. Sharma, Director JEC welcomed the ISLE members and thanked them for organising the event. Dr. S.C. Begh the Vice Principal also thanked ISLE and asked the students to take advantage of this unique initiative.

Chairman ISLE JLC, Er. R.S. Saxena in his address highlighted the task being undertaken by ISLE and how this could benefit the students and the institution, whereas Secretary, Er. A.K. Jain emphasised the need to concentrate on core engineering and educated them on the career opportunities in the lighting and energy sector.

The presentation on "Lighting Design" was made by Er. Bajpei, ISLE Member. A case study was also undertaken showing that how economy could be achieved in the seminar hall by designing of lighting through appropriate software. A copy of the software was also gifted to the institution as a gesture of goodwill.

Er. Sidhique, Head, Electrical Engineering Department, JEC gave the vote of thanks.

MUMBAI STATE CENTRE

MBA Students from Canada visit Mumbai

April 15-16, 2009

A group of twelve MBA Students from the University of Victoria, Canada arrived on a two day visit of Mumbai as part of their project on 'Intelligent Street Lighting'. They were accompanied by Dr. A.R. Elangovan, Associate Dean & Director, International Programs, Associate Professor and Dr. Saul Klein, Lansdowne Professor of International Business, Director of Executive Programs, University of Victoria.

On the 15th morning they visited Crompton Greaves at Kanjur where Mr. Manoj Verma, Vice-President - Consumer Products & International Business took them through an interesting presentation on Crompton's corporate status and international presence in the electrical and lighting industry. This was followed by a presentation on Street



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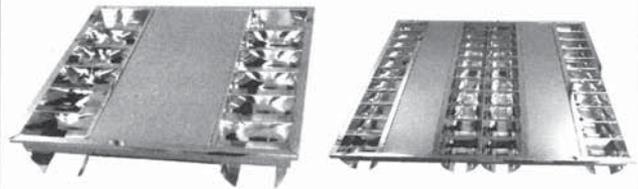
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Lighting by Mr. Rajesh Naik, DGM - Design & Quality. They were then taken around the Global R&D where a presentation was made by Mr. M. N. Nikam, Senior Technology Manager, Business Development CG Global R&D Centre. The students were amazed by the buzz of activity which was far more than they experience in their country. They were then treated to a sumptuous lunch.

Reliance Infrastructure, Versova Receiving Station was the next stop where Mr. Daya Samant gave a presentation on 'Street Lighting Management by Reliance Energy'. The students had a lively interaction with Mr. Sali Subramanian - Asst. Vice-President - Streetlighting & Mr. Mahesh Ramchandani - Dy. General Manager - Streetlighting.

The next morning, began with a visit to Electric House, the BEST Headquarters where the students were welcomed with flowers by Mr. Arvind A Mule, Chief Engineer (Works). Presentations on various aspects on Street lighting were made by Mr. M.M. Ambre, Divisional Eng. PLN on 'Design requirements/installation'; Mr. Mr. D.S. Khalap, Dy.Eng. SLC on 'City Lighting'; Mr. R.T. Shah, Divisional Eng. SLM on 'Maintenance aspects'; and Mr. Bhagat, Dy.Eng. SLC on 'Lighting arrangements for Ganapati immersion'. After a round of delicious snacks the students exchanged views with Mr. S. A. Puranik, Dy. General Manager (ES) on the present and future trends in Street lighting.

In the afternoon the students visited Bajaj Electricals Ltd., Reay Road where they were welcomed by Mr. Gulshan Aghi, Executive Vice President & Head Luminaires BU and Mr. K. Naveen - General Manager, Lighting Design: Luminaires BU. Mr. Naveen gave a short and crisp presentation on Street lighting which was much appreciated by the students. They then visited the Lighting Lab where they had their first ever glimpse of a Mirror Goniophotometer, which left them very impressed. They then left for Bajaj Bhavan, Nariman Point where they were awaited by Mr. Shekhar Bajaj. A warm note of familiarity was immediately struck with Mr. Bajaj who is a great fan of Canada and even celebrated his 50th birthday there. The students were first taken by Mr. Bajaj through the Ground floor showroom and introduced to the wide range of his company's products. He then took them around the Bajaj Gallery where the Indian freedom struggle was brought alive with photos and correspondence of



Jammalal Bajaj the founding father of the Bajaj Group, the adopted 'fifth' son of Mahatma Gandhi. The students were very touched by this experience. Mr. Shekhar Bajaj then took them to his personal Conference room where they were treated to authentic Indian snacks and coconut water. A lively interaction followed where matters from lighting and corporate management to Indian elections were discussed. All in all, it was a memorable evening for the Canadian visitors who left for Bangalore with a deeper understanding of the Indian scenario in all matters including Street lighting which became a complete learning experience.

This visit was organized through the good offices of Mr. H.S. Mamak assisted by Mr. Amal Auddy, Hon. Treasurer, and Mr. Stan Alvares, Co-ordinator - Programs, ISLE Mumbai State Centre.

Stan Alvares

KARNATAKA STATE CENTRE

Election of State Centre Committee for 2009-2011

The election process for the new State Centre Committee was completed by the by the Convenor of the Board of Scrutineers, Mr. Poonish Mehra.

In the State Centre Committee meeting on June 19 Mr. Mehra explained that he had received only 6 valid nomination papers. The following six members were declared elected unopposed.

Mr. M.S.N. Swamy
 Mr. M.G. Satyendra
 Mr. Riaz Kagalwala
 Mr. Kurian Mathew
 Mr. Bhavani Prasad
 Mr. B.T. Ajwani

The members of the new State Centre Committee elected the following office bearers:

Mr. M.S.N. Swamy	Chairman
Mr. M.G. Satyendra	Secretary
Mr. Riaz Kagalwala	Treasurer

The Committee also decided to co-opt Mr. R. Ravi.



12th Annual General Meeting

July 5, 2009

The 12th AGM of ISLE KSC was held at Century Club Bangalore on July 5, 2009.

The Chairman, Mr. Jadhav welcomed all the members. In his welcome address he complimented the team's performance during 2008-2009. In spite of the economic recession they were able to hold Vision 2010 with an excellent participation of more than 50 exhibitors and 400+ delegates.

Mr. Jadhav thanked all the members for their cooperation.

Mr. M.S.N. Swamy, Secretary read the annual report for the year 2008-09, a special feature being listing out the various 'Firsts' of ISLE KSC since its inception from 1997.

The Audited Accounts for the year 2008-09 were then tabled by the Hon. Treasurer Mr. Riaz Kagalwala. The Accounts after deliberations accepted unanimously.

The Chairman Mr. S.L. Jadhav introduced the new Committee members and handed over charge to the new Chairman, Mr. M.S.N. Swamy and the new State Centre Committee.



The new State Centre Committee

Mr. R. Ravi was co-opted as a member of the Committee and Mrs. Malini Kurian was co-opted as a permanent invitee.

The State Centre Committee presented the budget and proposed a series of 6 awareness building programmes at colleges and government institutions with a possibility of increasing the number subject to sponsorship support. The budget was approved unanimously.

Other issues discussed included the need for spreading awareness on energy saving and new developments, a drive to increase membership and the possibility of establishing Local Centres.

CIE ACTIVITY

Accessible Design in Light and Lighting Guidelines for Lighting for the Elderly and People with Disabilities

With the globally increasing share of population of older people and also the increase of awareness for the rights of persons with disabilities, care for older people and people with disabilities is becoming a worldwide concern in governmental, social and economic affairs. This global movement has therefore reflected on international standards organizations such as ISO, IEC and the CIE in their development of standards. The design that takes care for those with special needs is called Accessible Design or Accessibility. The basic concept of accessible design is to extend ordinary design methods to meet the needs of people with special requirements to reach as many users (or customers) as possible. For example, if the letters in visual signs or product labels are too small for people with low vision to read them, accessible design means to enlarge the font size to enable them to read without using any assistive tool, such as a magnifier. Furthermore, if the letters are provided in Braille letters even the blind could be a user group. This increase of users by some additional design considerations is the basic concept of accessible design, and various types of this design can be considered.

To spread this excellent concept among standards developers, ISO and IEC jointly published a general guide on Accessible Design in 2001, which is called ISO/IEC Guide 71 and has become now a well-known document in international, regional as well as domestic standard bodies¹⁾. The CIE, as one of the international standards organizations, also committed itself to promote accessible design in all areas concerning light and lighting. In the lighting field, there are many factors to consider along with the fundamentals of accessible design. For example, glare is one of the popular problems of which older people suffer in their everyday life. People with low vision always need a much larger font size in public signs and appropriate lighting levels as well. The visual field of people sitting in a wheelchair largely differs from that of people standing and this may cause some problems in finding visual signs, like emergency signs. The ISO/IEC Guide 71 addresses some of those critical factors but CIE has to consider what it can do for Accessible Design in designing the visual environment and apply its expertise. In fact, CIE has already touched this issue from the 1980s on, and provided some excellent publications (see CIE 123-1997 "Low Vision" or CIE 146:2002 "CIE Equations for Disability Glare"), but there are still many more items

to take into account to improve lighting technologies for older people and people with visual disabilities.

The CIE Board of Administration, TC 1-54 "Age-Related Change in Visual Response". TC 3-44 "Lighting for Older People and People with Visual Impairment in Buildings" are the groups currently working on this issue. One of the outcomes of those activities is the publication and approval of the "CIE Guidelines for Accessibility", which is about to be published. These guidelines include necessary technical information for implementing accessible design in the field of lighting, such as vision data of older people or people with low vision as well as design considerations for lighting and visibility for these groups. The guidelines also include excerpts from the ISO/IEC Guide 71 that are relevant to lighting designers. To offer technical information on ageing or limits of visual abilities of people with disabilities is one of the key issues in promoting accessible design 2). We have to know how our eye changes with age, or how people with low vision perceive the lighted environment. Such information is apparently critical for designing better lighting, but not sufficiently covered in literature. The CIE guidelines include some useful information on this point, for example, luminous efficiency for photometry and colorimetry, visual acuity and font size for visual signs, colour combinations, glare avoidance, the visual field and detectability, the required lighting level, as well as various design considerations in light of accessible design.

The guidelines are an informative document and will be useful for lighting designers who try to implement accessible design. We do hope that accessible design is given more concern among the lighting designers and that the Guide is widely used.

References:

- 1 ISO/IEC Guide 71:2001 Guidelines for standards developers to address the needs of older persons and persons with disabilities.
- 2 ISO/TR22411:2008 Ergonomics data and guidelines for the application of ISO/IEC Guide 71 to products and services to address the needs of older persons and persons with disabilities.

Dr. Ken Sagawa
CIE Secretary
(reproduced from CIE News)

Conference "CIE 2010 Lighting Quality & Energy Efficiency"

March 14-17, 2010 Vienna

The CIE, founded in 1913, is the oldest and most respected International Lighting Organisation, which deals with all the different aspects of this subject. It is totally committed to the development of energy efficient lighting

technologies and standards but without sacrificing safety, security and other important aspects of lighting quality. This objective can be achieved through the intelligent use of new technologies and a scientific understanding of the varied human needs for different types of lighting in different settings.

- A more efficient use of daylight augmented with the use of more efficient lamps and the latest lighting technology now enable us to save energy without sacrificing good lighting.
- Findings in medical science reveal that light plays important roles in maintaining optimum regulation of biological rhythms and hormones on a daily basis. However, the improper choice of lamps or luminaires (fixtures) and poor lighting design and/ or lighting installation maintenance, can actually have negative consequences for health and also for traffic safety, personal security, work performance and well being.
- Electronic control systems enable us to adapt light levels and timing of artificial lighting to minimize energy consumption depending on the levels of available daylight and occupancy in buildings as well as traffic volumes on roadways.

Good lighting brings safety, security and a better quality of life to all but needs to be related to the supply of the correct amount of light and with good colour rendering, with the minimal use of resources. CIE 2010 will therefore highlight

- Surveys of experimental projects
- Lighting techniques & scenarios
- Integrated approaches in Lighting Design
- Lighting quality criteria
- Future possible lighting schemes
- Methods to compare lighting installations
- Case studies of energy-efficient lighting
- Review of energy-efficient lighting control systems
- Energy efficiency and environmental compatibility

As President of the CIE, and as Conference President, I am proud to present **CIE 2010 "Lighting Quality & Energy Efficiency"** as a unique forum to get to know the latest developments and results and invite you to join in the effort to enhance lighting quality and reduce energy consumption worldwide.

For any further information, please, visit the conference website at vienna2010.cie.co.at.

Looking forward to seeing you in Vienna next year,

Dr Franz Hengstberger
Conference President)

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Label For Electric Storage Water Heaters (Geysers)



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POWER SAVINGS GUIDE

Standing Loss (kWh/24 hr)
0.753*

Appliance Type	: Geyser
Brand	: YYYV
Model/Year	: ABC/2007
Capacity	: XX
Power	: XX

*Under test conditions when tested in accordance with IS 374. Actual electricity consumption will depend on how the appliance is being used.

Label For ACs



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POWER SAVINGS GUIDE

ENERGY EFFICIENCY
2.90*
EER (w/w)

Appliance Type	: XX Window
Brand	: YYYV
Model/Year	: ABC/2007
Cooling Capacity (W)	: XX
Power Consumption (W)	: XX
Variable Speed Compressor	: Yes/No
Heat Pump	: Yes/No

*Under test conditions when tested in accordance with IS 374. Actual electricity consumption will depend on how the appliance is being used.

Label For Refrigerators



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POWER SAVINGS GUIDE

ELECTRICITY CONSUMPTION
580*
UNITS PER YEAR

Appliance Type	: Refrigerator
Brand	: ABC
Model	: XYZ 1792007
Type	: Frost Free
Compressor volume	: 270 liters
Storage volume	: 265 liters

*Under test conditions when tested in accordance with IS 374. Actual electricity consumption will depend on how the appliance is being used.

Label For TVs



ENERGY SAVINGS GUIDE

Annual Energy Consumption (kWh/Year)
165*

Model No./Year :
Equipment Type :
Screen Size :

Under test conditions when tested in accordance to IEC 62301 and 62087. Actual energy consumption will depend on how the equipment is used.

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Label For Ceiling Fans



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Know the Service Value of the Fan.

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ENERGY SAVINGS GUIDE

Model No./Year - Service Value - **3.9***
Air Delivery - 210 cu m/min
Size - 1200 mm

Manufacturer Address and other details if any as specified in IS 374

*Under standard test conditions when tested in accordance with IS 374, the actual energy performance will depend on the how the equipment is used.

Label For Tube Lights



POWER SAVINGS GUIDE

Label For Tubular Fluorescent Lamps

STAR RATING	★	★★	★★★	★★★★	★★★★★
Lumens per Watt at 2000 hrs of use	<=61	>=61 & <=67	>=67 & <=76	>=76 & <=82	>=82
Lumens per Watt at 3000 hrs of use	<=52	>=52 & <=57	>=57 & <=77	>=77 & <=83	>=83
Lumens per Watt at 5000 hrs of use	<=49	>=49 & <=54	>=54 & <=73	>=73 & <=78	>=78

Under test conditions when tested in accordance to IS 2418. Actual efficiency will vary as per life conditions.

Count the stars within the colored strip. More stars, more savings

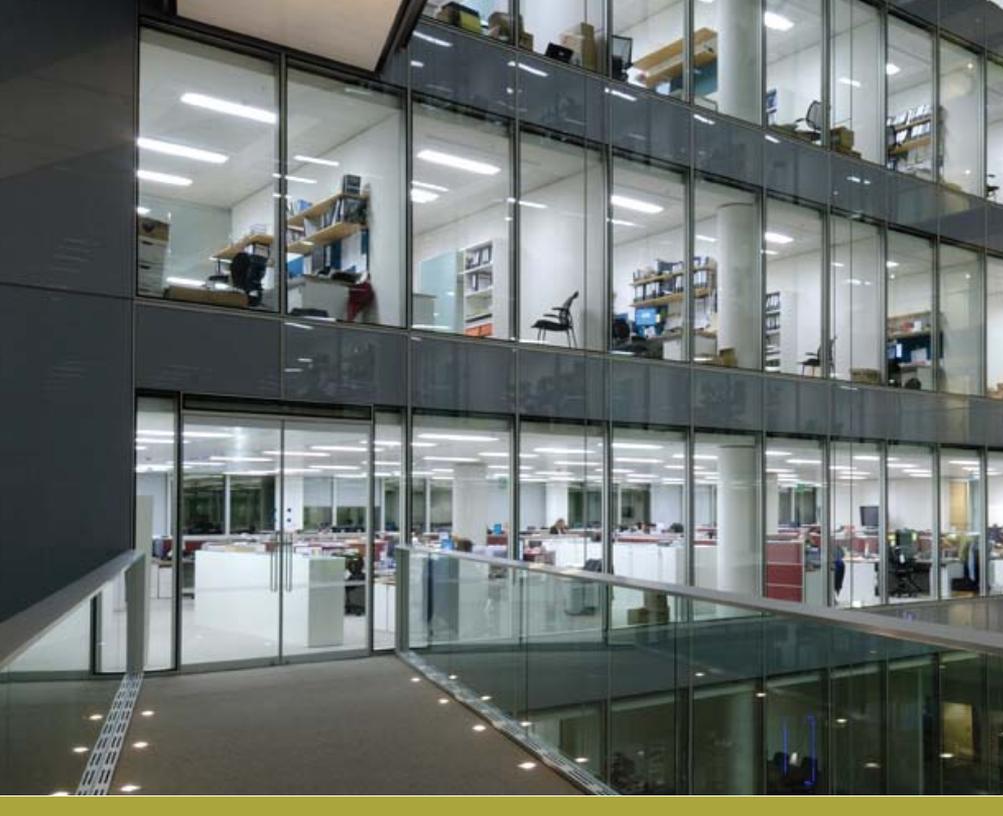
Know the Lumens per watt. More Lumens mean More Light

See the BEE logo for the authenticity of the label

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Bring home only BEE certified electrical appliances. Rated according to the amount of electricity consumed by them, your savings increase with the number of stars on the label.
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ENTRANCE AND ATRIUM, 3 MORE LONDON RIVERSIDE

LONDON, UK

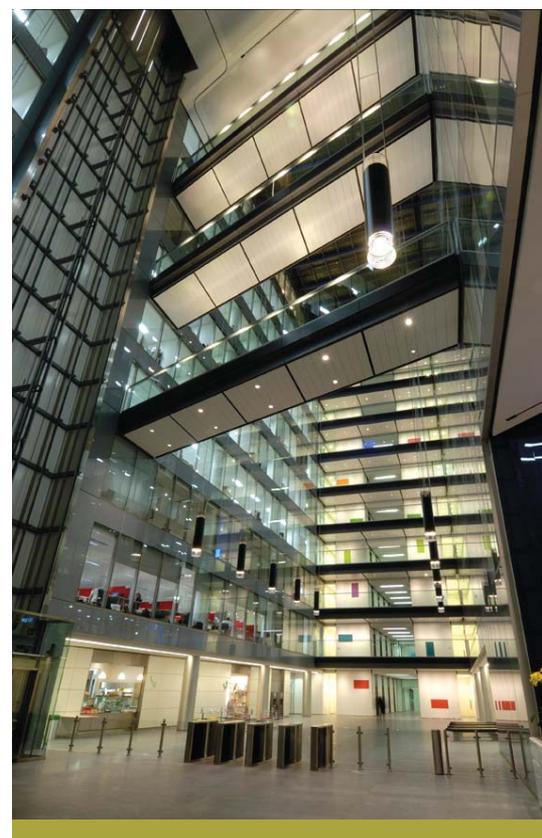
The brief of Entrance and Atrium, 3 More London riverside was to produce a simple and elegant lighting solution which eliminated the need for high level fixtures or clutter on the ground plane while providing a pleasing atmosphere.

The entrance and atrium of 3 More London riverside was seen by the architects as a transition between the world outside and the internal office spaces. Energy was to be minimised and all fittings easy to access and maintain. The lighting was to also support an initiative to introduce art into the space. The decision to design a series of highly complex pendant fixtures provides a unique identity for the project and a sophisticated technical solution.

One IALD award judge commented that the lighting design “demonstrates a great understanding of perception and perspective. Lighting is used to activate the space from any vantage point.”

The entrance is illuminated by ceramic metal halide downlights bracketed from the main structure that pick up the dynamic movement of people passing through the revolving doors.

When entering the atrium the soffits of the bridge decks are clearly articulated. The unique custom pendant fixtures provide general downlighting and a soft glow of light to the atrium roof. The back wall of the atrium with its integral artwork is cleanly lit to provide a visual stop and draw you through the space to the lift lobbies beyond. Light spill from the offices was considered to be an integral part of the life of the scheme providing additional ‘free light’ to the space.



RADIANCE AWARD

PROJECT CREDITS

LIGHTING DESIGN, IALD

Mark Major, IALD
James Newton
Clementine Rodgers
Speirs & Major Associates

PHOTOGRAPHY

© James Newton

“The lighting integrates beautifully with the architecture of the Atrium. Each floor is a different story as people enter and leave each floor, the glowing walls of the core walkways become the backdrop to the daily drama of office life,” another IALD award judge said of the project.

The custom pendants provide general light without creating clutter at low level or the need for fixtures at high level. They contribute to the human scale of the space providing a soft quality that creates a transition between the external spaces and the offices within thereby allowing the eye to adapt as you move deeper into the building.

The quality of the lighting is apparent from all levels. It not only creates the right ambience on grade but also offers views from the office windows. The balconies are illuminated from simple ceramic metal halide downlights and wallwashers which highlight the rear wall of the atrium as a continuous plane of light emphasising the colorful artwork. The lighting of balconies puts people into silhouette against the core wall providing a constant display of dynamic movement within the atrium.

The custom pendants represented a considerable technical challenge. Just under a storey high they are suspended through seven levels. They incorporate a ceramic metal halide downlight, uplight and circular T5 lamps that not only provide a decorative glow but also provide low energy emergency and security lighting. The uplight is fully louvered to prevent direct views into the lamp from above. The housing is designed to drop down so the whole inner assembly can be maintained from the cleaning cradle.

“(This is) a project in which the lighting design is in complete harmony with the architecture. It elevates the visual experience through both powerful and subtle uses of light,” an award judge concluded.





MOMA WRIGHTSMAN GALLERIES

NEW YORK CITY, NY USA

When asked to comment on the design of the Wrightsman Galleries, an IALD award judge praised the design as “the embodiment of technical artistry in lighting design.” They continued, “It demonstrates a thorough understanding of the psychology of light, is incredibly crafted and executed and is beautifully integrated.”

Witness to kings, queens and courtiers, these grand rooms were dramatically transformed from lifeless museum displays into atmospheric environments. Each room’s character is slightly different.

Visual hierarchy/balance, shadow, color temperature, sparkle, time of day and place are conceptually woven into the lighting. Within that context the spectacular objects on display must be revealed, within strict conservation limits, in all their glory. Period historic chandeliers, torchères and sconces were sensitively rewired, internal lighting was refurbished and candlesticks were equipped with electric “flames” that subtly move. Accent lighting uses state of the art technology. A sophisticated dimming system controls all.

“Few projects so well represent detailed understanding of light, physics, psychology, history and the practicalities of manufacturing,” one IALD judge commented.

Another added that “the painstaking care evident in the details of this work, coupled with the designers’ mastery of contrast and visual sleight-of-hand, demonstrates the power of light to elevate experience.”

AWARD OF EXCELLENCE

LIGHTING DESIGN

Larry French, IALD
E. Sara McBarnette, Associate IALD
Marlene Lieu
Auerbach Glasow French

PHOTOGRAPHY

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200, 250, 320, 350, 400
E 27 Colour: Blue & Green - 150W
E 40



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70, 150, 250



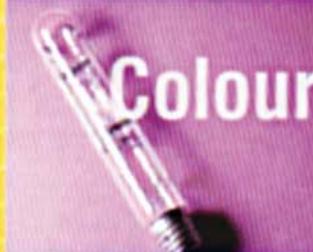
Tubular Lamps

Wattages: 70, 100, 150,
200, 250, 320,
400, 600, 1000
E 27
E 40



Colour Lamps (Tubular)

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Pink and Magenta
150W - Blue & Green



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MAKHJA 5364

**AWARD OF EXCELLENCE****LIGHTING DESIGN**

Graham Rollins, Senior Designer
Lighting Design International

PHOTOGRAPHY

© Christian Richter



LIMERICK HOUSE SPA

LIMERICK, IRELAND

The brief for the Limerick House Spa was to create a series of calming, coherent and relaxing spaces in a newly carved-out basement. The lighting challenge was to create a versatile yet discrete scheme, which would enhance and complement the forms, while creating the correct ambience for this tranquil subterranean retreat.

“Rarely does a pool get more than just utilitarian lighting, [and] this project takes the architectural limitations of a typical pool area and turns it into a clear design success story,” one IALD Awards judge stated. “The lighting creates the atmosphere and is beautifully integrated into the architecture.”



Lighting had to be integral to the form, with great efforts made to hide visible technology through clever coordination and detailing. The scheme was designed for the visitor to see the effect of light and not the source, prioritising spatial order by exploring simple relationships between stone, water and light.

Judges were impressed by the “positively stunning effects from natural and artificial lighting sources,” and described the project as “an archetypal achievement for pool and spa lighting design.”



NOVARTIS CAMPUS RECEPTION BUILDING AND UNDERGROUND CAR PARK

BASEL, SWITZERLAND

The reconstruction of the main Novartis entrance area resulted in a new reception building and underground car park, which breathes lightness and transparency while supporting the company's corporate image.

"Never before has a utilitarian sub-grade parking space been so endowed with such beautiful lighting," one judge remarked. "The parking experience is clearly a welcoming, safe and pleasant experience."

The reception building, a glass pavilion with a "floating" roof, welcomes visitors. Ultimate transparency appears at night as the glass panes become invisible and the white roof is enhanced by the uplights integrated in architectural elements.

Arriving by car implies an extraordinary parking experience. The symbiosis of light and architecture structures the space, allowing a minimum of distracting elements and creating a feeling of safety and lightness.

"Unfettered by the usual pragmatic constraints associated with most parking garage design, this project enjoys lighting in the principal roles of orientation and way-finding," a judge concluded. "While providing visual cues through a varied revelation of materials and precise control of undesirable brightness, the lighting approach seamlessly reinforces the architectural goals."



AWARD OF MERIT LIGHTING DESIGN

Andreas Schulz, Assoc. IALD
Julia Elsaesser
Alexander Rotsch
Licht Kunst Licht AG

PHOTOGRAPHY

© Lukas Roth
© Alexander Rotsch



WGV CAFETERIA

STUTTGART, GERMANY

The design and “feel” of this cafeteria is the result of an intense and creative cooperation between the interior architects and the lighting designers.

When asked to comment on the cafeteria, one judge remarked it was “a corporate cafeteria worth any reservations one may have about the food.” They continued that the “form, texture and visual definition provide this space with a comfortable aesthetic and invitation atmosphere.”

Custom-made, “floating” reflective objects and LED-luminaires were designed especially for this project. Judges praised the “clever use of the ceiling as a design element” during deliberations. Ambient and punctual lighting elements define the different moods, areas and functions. Most lighting fixtures were integrated, recessed or mounted trimless into furniture and ceiling.

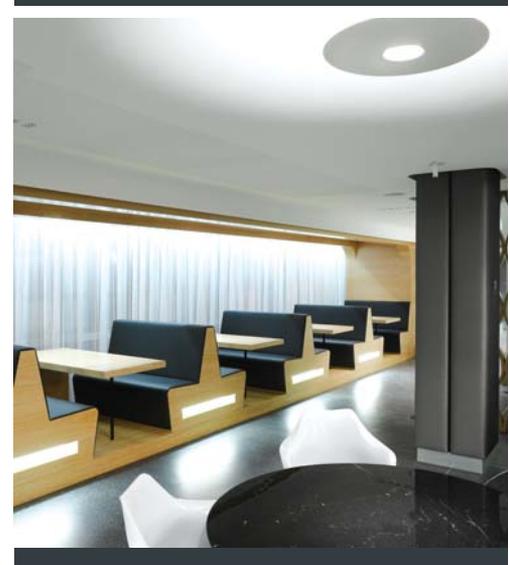
Molded domes, made from gypsum, dominate the ceiling in the central seating area. “Floating” discs work as reflective elements for the flush mounted downlights installed in the dome. Dimming these elements has a wonderful effect. The discs, referred to as M&Ms during the planning process, are made from MDF treated with a heat-resistant matte-white finish. The central disc opening allows the light to shoot down to the table. Approx. 70% of the lighting quantity is used to flood the inner surface of the domes for ambient lighting.

AWARD OF MERIT LIGHTING DESIGN

Gerd Pfarré, IALD
Linda Heller
pfarré lighting design

PHOTOGRAPHY

© Zoëy Braun, Stuttgart



THE PHOTOMETRY AND GONIOPHOTOMETRY OF LUMINAIRES – SUPPLEMENT 1: LUMINAIRES FOR EMERGENCY LIGHTING

CIE 121-SP1:2009

This report provides information regarding the photometric measurements of emergency lighting luminaires. It is the intention of this document to provide measurement methods for testing the compliance of emergency luminaires with the photometric requirements of IEC safety standards IEC 60598-2-22 and IEC 61347-2-7 issued by IEC/TC34 “Lamps and related equipment”. Photometric methods for the measurement of other photometric parameters currently in use are also provided, but the measurement of safety signs is not included. Measurement procedures relate to the editions in use at the date of publication of this report and may vary for future editions. It is the responsibility of the laboratory to check for current applicable procedures. The concept of emergency ballast lumen factor applies only to emergency luminaires equipped with classical discharge lamps and for which a reference ballast has been normalised. For LED luminaires mostly absolute values apply, not related to the luminous flux of the LEDs alone.

The publication is written in English, with a short summary in French and German. It consists of 19 pages with 1 table, and is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).

This publication is a supplement to CIE 121:1996 which is also available via the above mentioned CIE website.

The price of this publication is EUR 38,- (Members of the National Committees of the CIE get 50% discount).

LUX PACIFICA

Turning up the heat in Bangkok — the 6th Lux Pacifica

Originally slated to be held in Khabarovsk in eastern Russia on the same dates, Lux Pacifica was quickly transplanted to Bangkok in mid February, allowing only two months for conference preparation. With the death in late December of the principal organiser in Russia, Gennady Shakparunyants and the quick slide into disarray of the Russian economy, a decision was made to proceed with the event rather than cancel or defer it.

The challenge was to make the necessary changes and still be able to attract sufficient delegates to make

the conference viable. Achieving a successful conference in two months is a story in itself but it is sufficient to say that the goodwill of the paper presenters and



Dr. Warren Julian

those who had registered for Khabarovsk was essential to that success. The Russian IES was very helpful, as were members of the Thai IES. The IESANZ provided the registration service and Hajimu Nakamura kept the Japanese fully informed of the changes.

There were numerous logistics to solve and then in the week prior to the conference, Bangkok's political turmoil raised its head again. Not only was the temperature rising in Bangkok, but the newspaper coverage of what was happening in Victory Square was sufficiently hysterical to give the impression that Bangkok was sliding into a haze of violence. So, in the days leading up to the conference, many delegates sent emails expressing concerns about safety. Once the Songkran public holiday was over, the government gave the protesters free transport back to their villages outside Bangkok and peace descended on the square once again along with a sigh of relief and abated blood pressure for the organisers. Not an unusual event in Bangkok but media reporting was relatively inaccurate and made it difficult to convince delegates that everything was safe for visitors. Happily, no one seemed deterred from attending the event and the streets of Bangkok were free of both turmoil and the usual bustle of tourists.

The conference Proceedings and paraphernalia arrived in our hotel room just 24 hours before the start of the conference and we were fortunate to have the generous assistance of Sonia and Roy Speed (IESANZ President) who arrived in Bangkok early to assist with the pre-organisation, practical administration and gift-wrapping and last-minute purchases. Proceedings, stuffing conference bags, event finalisation and all the minutiae of a conference are crucial to a smooth flow of events. Even with late program changes during the three days, everything ran reasonably smoothly and professionally.

The conference had about 80 registrations with the following distribution by country: Australia (11), Canada (1), China (7), Hong Kong (4), Iran (1), Italy (1), India (1), Japan (35), New Zealand (1), Russia (7), Taiwan (1), Thailand (5), Singapore (1), UK (4) and USA (1). The Australian attendance was the highest at any Lux Pacifica, except in Cairns. The Thai attendance was low due to a conflicting engineering conference. There were

Architectural/Outdoor LED Lighting Systems Using Control Networking Technology

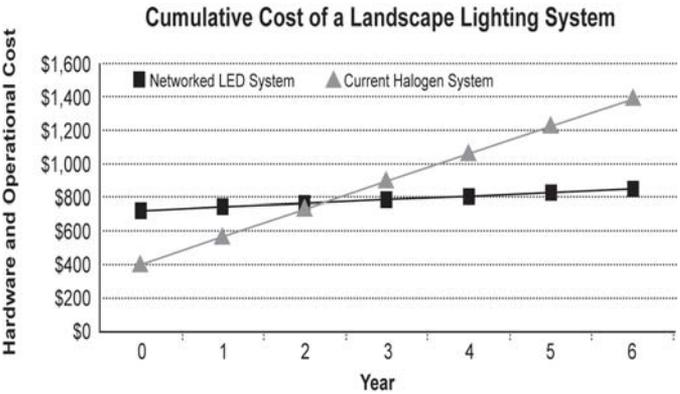
Abhay Gupta

Architectural/outdoor lighting is one of today’s most rapidly growing areas of lighting design. Municipalities, businesses, and homeowners use architectural and outdoor lighting to enhance their properties as well as increase security. Lighting system designers have traditionally chosen halogen light bulbs for these applications. However, advancements in LED lighting technology are making LED bulbs an attractive alternative to halogen lights. While LEDs were once limited to only a few low-power indicator lights, LED manufacturers are now creating brighter and less expensive LEDs, making them a viable option for general illumination applications.

LED lights have caught the attention of manufacturers and consumers largely because of their lower power consumption. They typically have an efficiency of 70-80 lumens per watt (a figure that will continue to increase as the technology improves), compared to halogens, which have an efficiency of 10-12 lumens per watt. A 3.5W LED light is equivalent in lumens output to a 20W halogen light. What prevents LEDs from becoming an instant hit in most applications, however, is the initial cost of deploying an LED lighting-based system. The good news is that the price of LEDs themselves is coming down, as a result of manufacturer cost improvements and greater volume deployments.

While LEDs are mostly attractive for their lower energy use, they possess other features that lighting system manufacturers have yet to exploit. These features include:

- The ability to easily dim LEDs at practically no extra dimming cost
- The ability to change colors by mixing red, green, and blue LEDs
- Fast response time



accompanying travellers from Australia, New Zealand, Japan, Iran, Russia, Canada, China and several very helpful, volunteer students from KMUTT University in Bangkok.

The conference got underway with a welcome reception on the 23rd April at the Holiday Inn Silom in Bangkok. Warren Julian, the Chair of Lux Pacifica welcomed delegates to Light without Borders, the subtitle theme of the conference. He thanked everyone for their patience during the reorganisation and relocation and for not being deterred by the political instability in the preceding weeks in Bangkok.

To open the conference, Dr Weeraphan Shinawatra (from ICOMOS Thailand) delivered an informative talk on the importance of understanding the cultural significance of a site rather than just the physical heritage and gave delegates some insight into the issues involved in protecting the old town of Chiang Saen. The Dr Alex Shepherd from the School of Psychology, Birkbeck, University of London, UK then delivered the keynote paper. Her topic was visual stimuli, light and lighting are common triggers of migraine and headache – a fascinating perspective on how light and patterns of light can sometimes adversely affect people.

With the two days of papers wrapped up, the Farewell Party took place around the pool of the hotel. It was a relief to be out in the nighttime heat - out of the frigidly air-conditioned conference rooms and into the tropically steamy evening. The relaxed meal provided a time for more social interaction along with some fitting thank you speeches for the lifetime contributions of James Jewell and Alec Fisher. Both of them expressed their confidence in a new and younger generation of passionate lighting aficionados. The spicy dishes kept coming and the flow Singa beer provided the counter to the heat of the food and the nighttime temperature.

At its meeting the Lux Pacifica Board awarded the next conference, in 2013, to Thailand. It was suggested that the Thai Illuminating Engineering Association might like to hold the conference in Chiang Mai or Phuket to give delegates a taste of a different facet of Thai culture.

It is expected that there will be other regional Lux Pacifica events in the intervening years, with one in 2011 in conjunction with Light India International in Chennai. It is also hoped to hold some smaller specialist events on lighting energy efficiency and lighting education during the quadrennium.

It was an enjoyable conference, judging by the emails received, but we hope that the next Lux Pacifica will not be interrupted by the events of a troubled world. With four year’s lead-in time there should be less “in the heat of the moment” organisation than this one.

Stephanie Rogers-Julian

These features can result in a lighting system that offers more benefits than a halogen light-based system, including greater flexibility and cost-efficiency, as well as multiple scene configuration. To realize these benefits, control networking must be added to the lighting system. This will allow you to send control signals to each light in order to change intensity, color, or both.

Benefits of Adding Controls

Adding control technology to a lighting system not only realises these benefits, but provides additional ones. A control technology with the right features can help simplify a lighting system’s installation and maintenance. In fact, easy installation is essential to sell any lighting system in larger-volume quantities. A system that requires highly skilled (and thus, expensive) technicians for installation and scene reconfiguration becomes out of reach for the average household.

The other benefit of adding controls is maintenance alerts. If the control technology supports two-way communication, any fault in the lights can be communicated back to the system controller for proactive maintenance. For public facilities such as parks, this can help eliminate regular onsite system inspections. It can also send a system alert in the event of a lighting failure, thus minimizing dark locations and increasing safety.

Cost Comparison

The higher cost of LED lights remains the No. 1 hurdle in the mass deployment of LED-based lighting systems. Let’s compare a sample halogen landscape lighting system with one based on LED lights. (Similar conclusions may be drawn for other lighting applications as well.)

Here are the major components of a landscape lighting system:

- **Lights.** The most common landscape light used today is a 20W halogen. A 3.5W LED light outputs equivalent light. The halogen light fixture can be bought for about \$10 (retail price). Although LED lights with control networking are not yet in retail stores, a controllable LED light will retail for about \$35,[1] assuming that retail prices are 3-4 times greater than the manufacturing cost. The cost of LEDs themselves (not the light fixture) is dropping to about \$1-\$1.50/watt.
- **Power Supply/Transformer.** A 14-light system (the size of the system for comparison purposes) needs about a 300W transformer for the halogen light system (20W/light) and about a 55W transformer for the LED light system (3.5W/light).
- **Wire.** Since LED lights use less current, a 16-gauge wire is sufficient to power up a LED lighting

system, instead of the 10-gauge wire needed by a halogen lighting system. This assumes that the length of the wire needed is 200–250 feet.

- **Controller.** Because today’s landscape lighting systems can’t be configured to change intensity levels or colors, they don’t need a controller; they can be simply turned on and off with a basic power switch or a timer. A networked LED lighting system, however, provides scene configuration. It needs a controller to create scenes and change them as needed.

Table 1 shows the cost comparison between halogen and LED lighting systems:

COST COMPONENT	HALOGEN		LED	
	Unit Cost/Details	Cost	Unit Cost/Details	Cost
Lights (Qty 14)	\$10	\$140	\$35	\$490
Transformer	300W	\$90	56W	\$29
Wire (200 ft)	(#10-2) \$0.87	\$174	(#16-3) ^[2] \$0.53	\$105
Controller		N/A		\$100
Total Cost		\$404		\$724

Table 1: Cost Comparison, Halogen vs. LED Lighting Systems

The LED lighting system’s higher cost makes it harder for it to get traction in the market. However, unless we factor in the operational (energy) costs of the lights, this comparison is incomplete.

The energy cost assumptions include:

- 8 hours of operation per day = 2,920 hours per year
- Electricity cost of \$0.15/KWh
- LED light consuming 3.5W vs. halogen light consuming 20W/light
- Life of an LED light > 50,000 hours (no need to replace for over 10 years)
- Life of a halogen bulb ~3,000 hours (needs replacing every year at ~\$3/light)

Table 2 shows how these cost assumptions lead to the total cost comparison between halogen and LED lighting-based systems over a six-year period:

	Year >	0	1	2	3	4	5	6
		Pyxos/LED Lighting System	Initial System Hardware Cost	\$724				
	Energy Cost		\$21	\$21	\$21	\$21	\$21	\$21
	Bulb Replacement Cost		\$0	\$0	\$0	\$0	\$0	\$0
	Cumulative Annual Cost	\$724	\$745	\$767	\$788	\$810	\$831	\$853
Halogen Lighting System	Initial System Hardware Cost	\$404						
	Energy Cost		\$123	\$123	\$123	\$123	\$123	\$123
	Bulb Replacement Cost		\$42	\$42	\$42	\$42	\$42	\$42
	Cumulative Annual Cost	\$404	\$569	\$733	\$898	\$1,063	\$1,227	\$1,392

Table 2: Total Cost Comparison, Halogen vs. LED Lighting Systems

By the end of the second year, the higher starting cost of the LED lighting system breaks even and saves money for many more years to come.

Please note that the two systems compared are not equivalent in feature sets. The networked LED lighting



system provides configurable and flexible scene settings and maintenance alerts, leading to benefits not accounted for in the above calculation.

Conclusion

Adding control networking to an LED lighting system can help you reduce costs, increase flexibility, and enhance functionality. A control technology that offers the right features can also offer additional benefits, such as simplified installation and maintenance, and automatic maintenance alerts.

[1] Calculation of networked LED light retail cost

3.5W LED @ \$1.25/W = \$4.38

Controls and driver cost = \$4.50

Light case cost = \$1

Total manufacturing cost = \$9.88

Retail price (3.5 times mark-up) = about \$35

For more information, contact:

Arun Moorthy
Country Head-SAARC Operations
Echelon Asia Pacific Limited-India Office
308 "Arcadia".Hiranandani Estate
Ghodbunder Road .Thane West.
Mumbai-400607
Cell:+91 9920017302
Telephone: +91 22 40128542
www.echelon.com

Banning the Incandescent Light is a Declaration of War

Howard Brandston

The Energy Department has declared war on the profession of Lighting Design. The time is NOW to call upon our legislators to bring a halt to the DOE's efforts to ban the incandescent light.

The replacement – the compact fluorescent lamp (CFL) – can present serious problems for workplace performance and space habitability, and does not always result in energy savings. Moreover the DOE's decision will negate how lighting design is practiced and lead to a waste of energy for many projects.

I state my case with conviction as I have designed nearly 3,000 projects in nearly 60 countries. As a member of the committee that created the first Energy Code – Standard 90-75, I wrote the mathematical equation that set the upper power limit for lighting in new buildings.

The data being used by the DOE to justify their irresponsible decision is in error. Many papers have been published documenting this error. See Saving the Lamp References (http://www.concerninglight.com/Saving_the_Lamp_References.pdf).

No single light source can serve every need. History shows us that no single light source is without its deficits and limitations. There is no magic bullet. Arc sources or incandescent technology, linear fluorescent or high intensity discharge, fiber optics or light emitting diodes, none has ever met all our lighting needs on its own. Similarly, the CFL is not the magic bullet.

The DOE's decision does not take into account the multitude of common applications where incandescent lamps consume less energy and perform better than CFLs on a lumen-per-watt basis. CFLs present a number of limitations including poor power factor and spectral power distribution resulting in a poor quality of light.

I recently delivered a presentation of the facts on this crucial controversy at Light Fair International May 5-7, 2009. Saving the Lamp (http://www.concerninglight.com/Saving_the_Lamp.pdf) provides a beginning study of supporting documentation substantiating my claims.

In meeting our lighting goals, true energy efficiency will only be achieved with a diversity of light sources at our disposal, applied in the most energy effective and manner possible.

Aristotle: "Happy is the person who knows the causes of things." Learn the facts. Be a voice. Contact your legislator.

The DOE's decision to ban the incandescent light will destroy the ability of those who practice good and responsible lighting design. We cannot let the DOE carry this forward.

Howard Brandston
LC, FIES, Hon, FCIBSE, FIALD, PLDA, MSL
Lighting Consultant

Errata

On page 5 of the October 2008 issue of the Newsletter the seminar on Approach to Energy Efficient Lighting Systems appeared under Kolkata State Centre. This item should have appeared under Other News. The oversight is regretted.

FORTHCOMING EVENTS

Green Building Congress 2009

September 9 – 12, 2009, Hyderabad

The Indian Green Building Council (IGBC) is organising its 7th edition of "Green Building Congress 2009" between 9 – 12 September 2009 at Hyderabad International Convention Centre (HICC), Hyderabad, India.

The objectives of the Green Building Congress are to:

- Showcase green building products / technologies / services
- Exposure to latest trends and technologies on green buildings
- Facilitate Market Transformation
- Facilitate networking and promotion of business opportunities
- Involve all stakeholders in the green building movement

Green Building Congress 2009 will feature the following major events:

Training Programme on Green Homes

International Conference on Green Buildings

Exhibition - Green Building Products/Technologies

Conference on Green Homes

Training Programme on Green Buildings for New Construction

Green Building Mission

The theme for this year is 'Affordable Green Buildings'.

For further information contact

sriram.bhaskar@cii.in / senthilkumar.b@cii.in.

Confederation of Indian Industry

CII - Sohrabji Godrej Green Business Centre
Survey No. 64, Kothaguda Post, Near Hi-tech City
R R Dist, Hyderabad - 500 032

Tel: 040 - 23112971 - 73

Fax: 040 - 2311 2837

Direct No: 99890 91744 / 45

Email: gbcevents@cii.in

28th Annual IES Street and Area Lighting Conference

September 13–16, 2009, Philadelphia

The only conference of its kind, the Street and Area Lighting Conference provides industry professionals with a forum for an open exchange of information on a wide range of outdoor lighting issues. The conference also offers educational opportunities that promote excellence in the street and area lighting industry.

The day prior to the conference sessions (Sunday) is devoted to outdoor lighting courses: introductory, intermediate, computer-aided exterior lighting design and LED outdoor lighting (new this year).

A three day conference is planned. Day one begins with an address by Jim Brodrick from the DOE, followed by sessions such as LED technology update, plasma lighting, legislative issues, white light design, and bridge lighting. Day two: elevated contact voltage, sustainability update, case studies (e.g., remote monitoring, lighting a university campus, utility rebates and funding sources, and Minnesota DOT), and a utility perspective of outdoor lighting. Day three: an urban lighting master plan, the affects of lighting on human health, the DOE parking lot lighting project and an update of IES roadway documents.

Rounding out the presentations are networking breakout discussion groups, exhibits, luncheons, and evening events.

For further information contact

Valerie Landers
ph 212-248-5000, ext 117
E-mail: vlanders@ies.org
Web Site: www.ies.org

PLDC 2009

October 29-31, 2009, Berlin

ISLE is one of the organisations supporting this international conference.

The conference is expected to surpass the 1100 delegates that attended the last event. The event will have 5 keynote speakers and 70 presented papers in four parallel sessions over the 3 days of the conference.

The detailed programme and registration form is available at www.pldplus.com

Louise Ritter
Tel: +49 5241 307 26 25
Fax: +49 5241 307 26 40
Email: lritter@via-internet.com

OLED that emits white light from a single molecule

Recent research reports describe an OLED that emits white light from a single molecule, and a hybrid emitter that combines an organic polymer with a quantum dot light-emitter.

White OLED

The researchers have built a specially-engineered organic molecule that combines two light-emitting structures, one emitting in orange and the other in blue, which together produce white light over the entire visible range.

The group claims to be the first to achieve stable white-light emissions using a single molecule. Further claims that this is a “more efficient and stable source of pure white light” will need extensive verification.

Combining OLEDs and quantum dots

An article in Technology Review describes a new class of LED, designated HLED or hybrid LED – see A Cheap Route to Robust LEDs: Chemical bonds put a new spin on quantum-dot hybrid light-emitting devices.

Researchers at MIT have apparently developed a process that aims to solve the problems of high fabrication costs and instability for OLEDs while still maintaining their flexibility.

The result is an HLED, which incorporates both organic and inorganic layers, combining the flexibility of an OLED with the stability of an inorganic light-emitting material.

The process starts with a substrate of electrically-conducting organic polymer, deposited in a low-vacuum chamber. The light-emitting layer comprises quantum dots, which are nanocrystals of inorganic semiconductors; each quantum dot can be “tuned” to emit certain frequencies of light.

Although quantum dots are inflexible themselves, they’re so small--two to six nanometers across--that even arranging them side by side in a continuous film still allows for flex in the material. So far, the team has succeeded in creating a red HLED, which lasted 2,200 hours at 100 C.

<http://portal.acs.org/portal/acs/corg/content?nfpb=true&pageLabel=PP>

[ARTICLEMAIN&node_id=223&content_id=CNBP_022126&use_sec=true&sec_url_var=region1&uuid=4ad1e1ff-3484-4c27-829a-1812d58a7f1f#P84_5782](http://portal.acs.org/portal/acs/corg/content?nfpb=true&pageLabel=PP&ARTICLEMAIN&node_id=223&content_id=CNBP_022126&use_sec=true&sec_url_var=region1&uuid=4ad1e1ff-3484-4c27-829a-1812d58a7f1f#P84_5782)

<http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ja902533f?cookieSet=1>

Report assesses life-cycle sustainability of ultra-efficient lighting

A report from the UK government shows that LED lighting, and dedicated LED luminaires in particular, will have the lowest life-cycle impact of all ultra-efficient lighting technologies.

The UK government’s Department for Environment, Food and Rural Affairs (DEFRA) has published an evidence study assessing the life-cycle sustainability impacts of residential lighting products based on ultra-efficient technologies.

The study can be accessed from the DEFRA website - see under the heading “Impacts.”

The study is the first to clearly show the lifecycle environmental benefits of a shift towards LED lighting, and particularly dedicated LED luminaires. The report assumes that various performance improvements will be achieved by 2014, at which time LED-based products will have less of an impact across all stages of their life-cycle, including manufacturing, transportation, usage and in the waste stream.

The report analyzes four different ultra-efficient lighting (UEL) technologies:

1. LED lamps with integral ballast (a.k.a. replacement lamps)
2. Dedicated LED luminaires
3. Ceramic metal halide lamps
4. T5 linear fluorescent

These are compared with established technologies such as compact fluorescent lamps (CFLs) and incandescent lamps.

The study assumes that the rate of improvement in efficacy and light quality from LEDs seen over recent years will continue over the next five years, taking the efficacy of lamps to over 100 lumens per watt - though improvements beyond this may also be envisaged.

It concludes that efforts to stimulate the developments of acceptable LED lighting solutions would further reduce the impacts from residential lighting, which has already begun with the phase-out of incandescent lamps. In particular, dedicated LED luminaires, because of their design, proved to have the least impact of all lamps.

The research also demonstrates that although the market is not currently ready for domestic application, LED lighting has potential for significant benefits over CFLs, which contain mercury, and have a relatively short lifetime.

Also, the report describes a series of action which the Government and others may wish to consider (in the context of EU regulations) in order to maximize the potential overall environmental benefits associated with UELs:

- * Research Support – co-sponsor research to advance the UK-knowledge base of UEL technologies, developing domestic IP (i.e., “the science of today is the surplus of tomorrow”)
- * Business Incubator – actively work to encourage and nurture small and medium size enterprises entering the UEL supply chain, either as a manufacturer or component supplier
- * Market Enforcement / Monitoring – protect consumers from unscrupulous manufacturers making exaggerated claims, while complimenting existing programmes like the Energy Savings Recommended label
- * Informational Labels – as part of a consumer awareness campaign to shift thinking about light from watts (i.e., of an incandescent lamp) to lumens of service
- * Bulk Procurement – potentially aggregating procurement offices of a few government departments. Offer contract awards / competitions to promote efficacy; prize money and/or large supply contract
- * Affordability – direct financial support for consumers and/or the supply chain, perhaps supported by revenue from the Carbon Emissions Reduction Target scheme
- * Fiscal Instruments – remove trade barriers applied to energy-efficient products
- * Better Regulation – support development of harmonised, international test methods and quality / performance standards.

<http://www.defra.gov.uk/environment/business/products/roadmaps/lighting.htm>
http://randd.defra.gov.uk/Document.aspx?Document=EV0429_8060_FRP.pdf

Lighting Controls Association offers online course on LED lighting control

The Lighting Controls Association (LCA) is pleased to announce that “EE300: Lighting Control of LEDs” has been added to the Association’s popular online Education Express distance education courses.

The Association’s website, www.aboutlightingcontrols.org, Education Express provides in-depth education about

lighting controls and controllable ballast technology, application, system design and commissioning, as well as meta-issues such as energy codes, daylighting and other trends.

In recent years, LED technology has transcended its traditional stronghold—saturated colors in indicators, exit signs and so-called archtainment applications, representing most LED products sold today—and began offering viable white light options in niche architectural applications such as lighting for outdoor and small, confined indoor spaces. As the technology continues its steady advance, applications have expanded to downlights, undercabinet, shelf, signage, façade, outdoor area, wall washing, cove, task, refrigerated display case, step/wall, electrical candle, sconce, handrail and marker lighting as well as retrofit replacement lamps.

Just as with conventional lighting systems, a critical consideration in applying LEDs in building environments is control. LED controls can be used to create a virtually infinite array of color output, or modulate the warmth or coolness of white light LED sources. They can allow dimming of LED light sources to occupant preference. And they can automatically shut off or dim lighting in response to control signals from inputs such as photosensors, scheduling devices, PCs and others.

EE300: Lighting Control of LEDs, broken into four learning modules, describes the fundamentals of how LEDs work and are controlled (part 1), control of color LEDs (part 2), control of white LEDs (part 3), and typical applications for LED control (part 4). The goal of the course is to provide a working understanding of LEDs and methods for integrating them into modern lighting system design.

At the conclusion of the first three learning modules, an optional online comprehension test is available, with automatic grading; a passing grade enables the student to claim education credit. EE300: Lighting Control of LEDs is registered with the National Council on Quality in the Lighting Professions (NCQLP), which recognizes a total of 6.6 LEUs towards maintenance of Lighting Certified (LC) certification.

http://www.aboutlightingcontrols.org/Education_Express/welcome.php

Blog on LEDs

From the makers of LEDs Magazine, this Blog enables readers to express their opinions on the big news stories in the World of LEDs.

<http://worldofleds.blogspot.com/>

Revised Draft of Energy Star Integral LED Lamp Criteria

The U.S. Department of Energy has just released the revised draft of the ENERGY STAR Integral LED Lamp criteria. Below are links to a cover letter and the draft criteria.

Letter -

http://www.drintl.com/htmlmail/ESIntegralLampsCoverLetter_19May09.pdf

Revised draft of the ENERGY STAR Integral LED Lamp Criteria -

<http://www.drintl.com/htmlmail/ESIntegralLampsDraft2.pdf>

LED professional Review (LpR) - Issue 13 :

Below is the link to the May/June 2009 issue of LED professional Review with a focus on LED Thermal Management.

http://www.led-professional.com/downloads/LpR_13_468932.pdf

LEDs Magazine June 2009

Technical articles, Industry news and case studies from LEDs Magazine can be accessed at the links given below

Articles : <http://www.ledsmagazine.com/features>

Industry News: <http://www.ledsmagazine.com/news>

Case Studies: <http://www.ledsmagazine.com/casestudies>

This WebWatch column is compiled from information provided by Anool Mahidharia

MEMBERSHIP APPLICATIONS APPROVED BY GOVERNING BODY

New Members Admitted on 30 March 2009

M. No.	Name & Addresses	Grade	Centre
M(L)1436	Mr. K. Kalaiselvan 5A, Nari Kullappa Mudali St. Pichanoor, Gudiyatham Vellore 632 602 (Tamilnadu)	Member (Life)	Chennai
M(L)1437	Mr. K. S. Prasad Kamath EI Power Systems P. Ltd. 316, 1st Floor, 7th Main, 15th Cross, Sadashivnagar Bangalore 560 080	Member (Life)	Karnataka
M(L)1438	Mr. Yogendra Vasant Talwase Dnyaneshwari Prabha Society-A Mayur Colony, Kothrud Pune 411 029	Member (Life)	Mumbai
M(L)1439	Mr. K. R. Shailesh Vimleshwar Anugraha Behind Swastic Ind. Bannanje Udupi 576 101	Member (Life)	Karnataka

A.0976	Ms. Harvinder Kaur Thorn Lighting India (P) Ltd. A-274, 1st Floor Defence Colony New Delhi 110 024	Associate	Delhi
A.(L)0977	Mr. R. Jayachandran #66, AV Krishnaswamy Street Janaki Nagar, Valasarankkam Chennai	Associate (Life)	Chennai
New Members Admitted on 8 May 2009			
I.0140	M/s Ansh Resources (P) Ltd. G-10, Anupam Nagar Raipur 492 007	Institutional	Mumbai
IM.0140	Mr. Bhagwati Prasad Agarwal M/s Ansh Resources (P) Ltd. G-10, Anupam Nagar Raipur 492 007	Institutional Representative	Mumbai
F.0640	Mr. Rohit Seventilal Shah 31 Satguru, 3rd Floor 16, French Bridge Mumbai 400 007	Fellow	Mumbai
M(L)1441	Mr. Gul Ramchand Bhawnani Bhawnani Lites Zaveri Building, Ground Floor 157/161, Princess Street Mumbai 400 002	Member (Life)	Mumbai
Transfer of Grade			
M(L)1440	Mr. Stan Alvares I, Lily Cot 15 Meera Bagh Santa Cruz (W) Mumbai 400 054	from A(L).0385	Mumbai
New Members Admitted on 22 June 2009			
F.0641	Mr. Rameshwar Nath Srivastava 10 Zakir Bagh Okhla Road New Delhi 110 025	Fellow	Delhi
F(L).0642	Mr. Balvinder Singh Surya Roshni Ltd. Padma Tower 1 Rajendra Place New Delhi 110 018	Fellow (Life)	Delhi
F(L)643	Mr. Amarendra Goswami 39, Hemagiri Road South Sarania Guwahati 781 007	Fellow (Life)	Kolkata
F(L)644	Mr. Chirantan Debidas Indian Institute of Chemical Biology (Engineering Service Unit) 4, Raja SC Mullick Road Jadavpur Kolkata 700 032	Fellow (Life)	Kolkata
M.1442	Mr. Pradeep Kumar Dua 18/13, IInd Floor Ashok Nagar New Delhi 110 018	Member	Delhi
M.1443	Mr. Rajendar Kumar Dua D-128, 1st Floor Mansarover Garden New Delhi 110 015	Member	Delhi
M.1444	Mr. R K Malik R K Projects Pvt. Ltd. 20 Main Market, Moti Nagar New Delhi 110 015	Member	Delhi
M.1445	Mr. R K Grover R K Projects Pvt. Ltd. 20 Main Market Moti Nagar, New Delhi 110 015	Member	Delhi
M.1446	Mr. Yogesh Bibra D-54, Mansarover Garden New Delhi 110 015	Member	Delhi
M(L).1447	Mr. Ajay Prakash Sharma J-20/233 West Sagarpur, Pankha Road New Delhi 110 046	Member (Life)	Delhi

M.1448	Mr. Neeraj K Sharma 101-B, Pocket - GU Pitampura Delhi	Member	Delhi	M(L)1452	Mr. Sandeep Jain The Lantern, Shop No.3 Opp Laxmi Mandir Rly Crossing Sahakar Marg Jaipur 302 015	Member (Life)	Rajasthan*
M.1449	Mr. Vinay Chaddha GUC Systems Pvt. Ltd. Amity Innovation Incubator Amity University Campus Sector-125 Noida 201 307	Member	Delhi	M(L).1453	Mr. Pankaj Garg A-6, Raghunath Colony Near Galta Gate Jaipur	Member (Life)	Rajasthan*
S.0353	Mr.Prashant Sharma H.No. 546, Sector -21 A Faridabad Haryana 121 002	Student	Delhi	M(L)1454	Mr. Ramesh Chand Sharma G-4, Amrit Kalash Apartment Main Tonk Road Near Kamal & Company Jaipur	Member (Life)	Rajasthan*
New Members Admitted on 30 June 2009							
I.0141	Kiran Enterprises 13, Jayanti Market Jaipur	Institutional	Rajasthan*	M.(L)1455	Mr. Ravi Kumar 3/526, Malviya Nagar Jaipur	Member (Life)	Rajasthan*
IM.0141	Mr. Kiran Gupta Kiran Enterprises 13, Jayanti Market Jaipur	Institutional Representative	Rajasthan*	M.(L)1456	Mr. Manish Chandwani Plot No.19, Ramesh Bhawan Sindhi Colony, Bani Park Jaipur	Member (Life)	Rajasthan*
F(L)0645	Mr. Prashant Bajpai 55/219, Rajat Path Mansarovar, Jaipur	Fellow (Life)	Rajasthan*	M(L)1457	Mr. Satendra Pal Singh 2, Kanakpura Indl. Area Sirsi Road Jaipur	Member (Life)	Rajasthan*
F(L)0646	Mr. Sanjeev Dakshini D-107 Sanjivani Marg Vaishali Nagar, Jaipur	Fellow (Life)	Rajasthan*	M(L)1459	Mr. Om Prakash Sharma Tanaji Nagar, Street No.7 Bhajan Gunj Ajmer 305 001	Member (Life)	Rajasthan*
F(L)0647	Mr. Pradeep Menon C-511, Akash Ganga Society Bais Godam Jaipur	Fellow (Life)	Rajasthan*	M(L)1460	Mr. Manoj Kumar Goyal 608, Unique Sanghi Apartmrnt Mahavir Nagar, Tonk Road Jaipur	Member (Life)	Rajasthan*
F(L)0648	Mr. Jyotirmay Mathur D-55, MNL Staff Colony JLN Marg Jaipur 302 007	Fellow (Life)	Rajasthan*	M(L)1461	Mr. Jitender Mohan 5-GA-33, Jawahar Nagar Jaipur 302 004	Member (Life)	Rajasthan*
F(L)0649	Ashok Kumar Vyas Choti Chaitaniyan Ki Gali Jodhpur	Fellow (Life)	Rajasthan*	A(L)978	Mr.Srinivasan N Kripa Telecom Unit -II No-18, Old Khata No.24/1 Konappana Agrahara Village Bagur Hobli, Hosur Road Bangalore 560 100	Associate (Life)	Bangalore
F(L)0650	Mr. Ajay Kishan Mutha Assistant Engineer PWD Elect. Subdivision Pali, Rajasthan	Fellow (Life)	Rajasthan*	A.0979	Mr.Prodip K.R. Paul Atlas Electric 39-Lenin Sarani (Basement) Kolkata 700 013	Associate	Kolkata
F(L)0651	Kamal Chand Jain D-266, Sarvanand Marg Malviya Nagar Jaipur	Fellow (Life)	Rajasthan*	A.(L)0980	Mr. Ravi Agarwal B-II, Rajshree Apartment S-9, Jyoti Nagar Extn. Jaipur 302 015	Associate (Life)	Rajasthan*
F(L)0652	Mr. Amba Shankar 20. Himmat Nagar Pali, Rajasthan	Fellow (Life)	Rajasthan*	A.(L)0981	Mr. Lalit Moolchandani 3, Dha19, Jawahar Nagar Jaipur	Associate	Rajasthan*
F(L)0653	Satyajeet K Mathur PR-86, Govt. Qtr. Pali, Rajasthan	Fellow (Life)	Rajasthan*	A.0982	Mr. Naval Kishor Gupta REIL, 2, Kanakpura Indl. Area Sirsi Road Jaipur	Associate	Rajasthan*
F(L)0654	Mr. Rajesh Chandra Purohit Near Fulla ki Pole Kagal Veer Mohalla Jodhpur 342 001	Fellow (Life)	Rajasthan*	A.(L)0983	Mr. Swagat Bhatnagar 5/216, SFS, Agarwal Farm Mansarovar Jaipur	Associate (Life)	Rajasthan*
F(L)0655	Mr. Hari Kishan Vyas 201, Laxmi Nagar Jodhpur	Fellow (Life)	Rajasthan*	A.(L)0984	Mr. Satish Khurana Bajaj Electricals Ltd. Raghu Kamal Niwas Opp. Ganpati Plaza M. I. Road Jaipur	Associate (Life)	Rajasthan*
F.(L)0656	Mr. Narendra Kumar Jain Vidyut Electronics 28, Nayeem Manzil Near Uncha Kuan Haldiyan Ka Rasta, Johari Bazar Jaipur 302 003	Fellow (Life)	Rajasthan*	* from July 11, 2009			
M.1450	Mr. Dibash Banerjee B 4/5 Diamond Park Joka Kolkata 700 104	Member	Kolkata	<div style="border: 1px solid black; padding: 5px;"> <p>Note</p> <p>The correct membership number for Mr. Shibashis Chakraborty is M.1403 and not 1420 as indicated in the April issue of the Newsletter. The error is regretted.</p> </div>			
M(L)1451	Mr. Vijay Kumar Verma D-102, Palam Apartment Bijwasan New Delhi 110 061	Member (Life)	Rajasthan*				



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Celino T5



Arano T5



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