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of the **indian society of lighting engineers**

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FROM THE PRESIDENT'S DESK

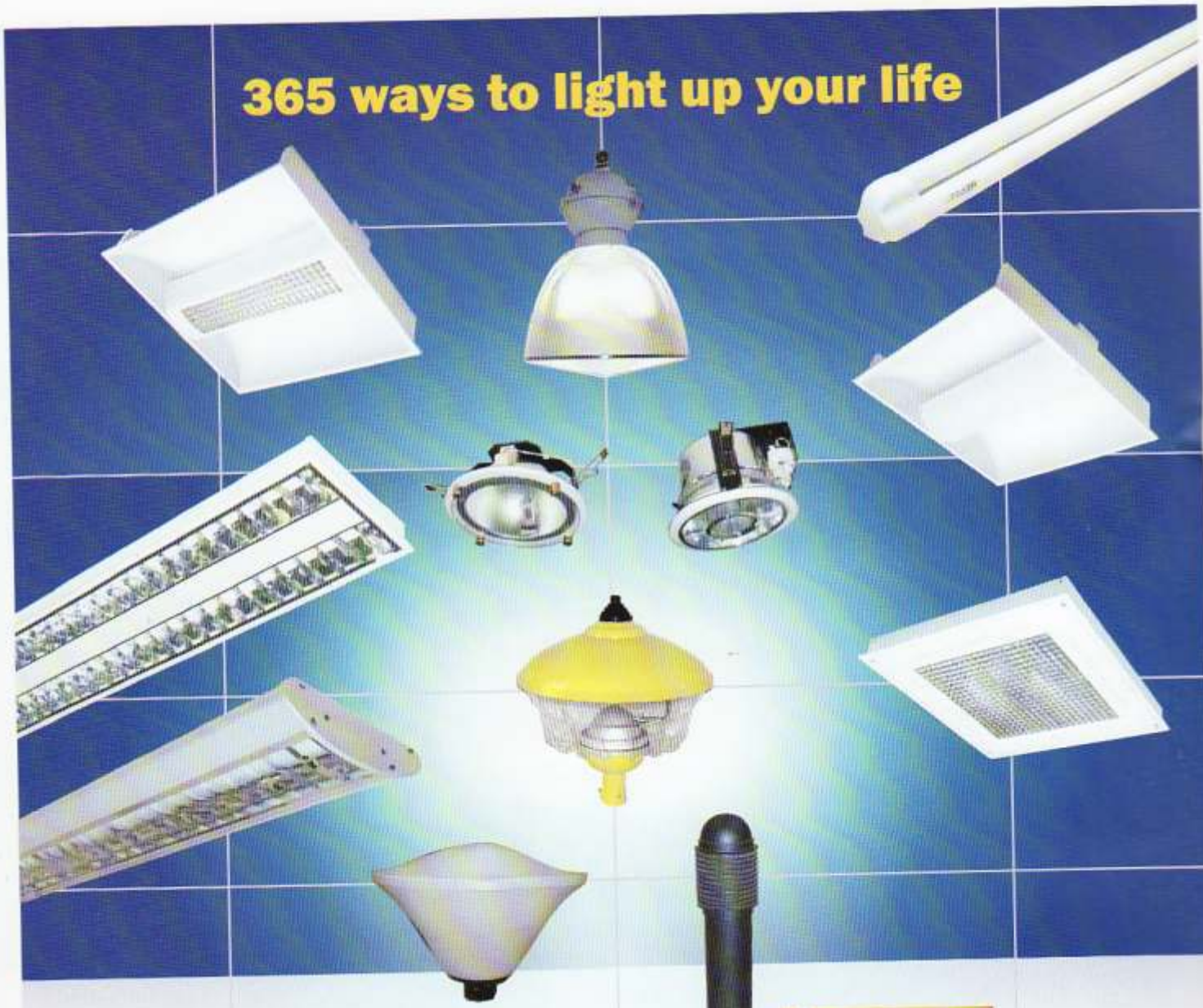
I have just returned from abroad after a few weeks and find that the Silver Jubilee celebrations are in full swing. The lectures in Bangalore and Delhi by the outstanding architect and urban planner Mr. Behr Champana have been followed by a technical seminar and cultural programme at Jaipur. The other State and Local Centres are planning their celebrations in the coming months. We can be proud that our Society has completed 25 successful years and it is appropriate that we have befitting celebrations in all the important cities in India. We want greater exposure to our Society and its focused objectives to promote good and efficient lighting in India.

Our long standing objective of running world class education and training programmes has resulted in two 2 day courses to be run by the LRC in December. It is a unique opportunity for our members (and in fact for anybody interested in lighting) and since there will be limited seats, I would suggest that you hurry and get in touch with Chennai and Mumbai State Centre to register. You will find contact information in this issue.

The preparations for the Lii2011 Exhibition and Conference at Chennai from March 4-7 next year seem to indicate a very successful event with nearly 5000 square metres already booked. The 2 day Conference is also shaping well and I suggest ISLE members mark their calendars for this important event being held in Chennai for the first time.

One of the reasons for my trip abroad was to attend a six day Light Source conference in The Netherlands. As I have said before in this column, I make it a point to attend this event which is focused on the science and technology of light sources and provides a comprehensive summing up of the developments in this field. As a consequence of the direction that the technology is heading in, the LS and White LED 3 were held together for the first time. A report on the conference is given in this issue.

365 ways to light up your life



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As you are aware the deadline for submission of abstracts for the CIE Session in South Africa next year is fast approaching (September 15, 2010) and I do hope that there will be papers from India as well at this important conference.

You will find that in recent months we have a large increase in our ranks with a large contingent of student members among them. In fact, the Rajasthan State Centre has established a new Student Chapter in Jaipur. It is reassuring to see that younger minds continue to be drawn to the field of Lighting.

Avinash D. Kulkarni
President
dradk@hotmail.com

EDITORIAL

You will find in this issue the details of the two courses being conducted by LRC in December this year. This is the result of a long standing and ongoing contact between ISLE and LRC over the years. In the year 2000 a two week course was organised at LRC for 19 members from India. However, since it was felt that this was expensive and time consuming, we have arranged for three faculty members from LRC including the Director to conduct intensive courses in India.

This course has the support of the Bureau of Energy Efficiency. These initiatives require a lot of time, effort and follow up (not to mention cost) to put into place and members should make the most of this excellent opportunity.

Also in this issue, you will find information on the Lii2011 Exhibition and Conference in Chennai. There will be a sizable international participation at the exhibition with a comprehensive display of the latest lighting products and technology and I hope that we will see you there. The conference is going to have an eminent panel of speakers. Look out for the programme in the next issue and on the website.

You will find reports on the Silver Jubilee functions at Bangalore, Delhi and Jaipur. It is heartening to see such a good turnout at these functions and we can look forward to an enhanced level of activity in the future.

The discourse in the WebWatch section compiled from the information sent to us by Anool Mahidharia continues to focus largely on LEDs especially street lighting, but also on health issues.

After some correspondence over a few issues last year we have not got any letters to the editor. Please do write in.

H.S. Mamak
Editor

ISLE ACTIVITY

ISLE LRC Lighting Course
December 6-10, 2010, Chennai and Mumbai

ISLE is joining hands with the Lighting Research Centre, the foremost lighting institution in the world to conduct two lighting courses in Chennai and Mumbai in this our Silver Jubilee Year. The course in Chennai will be on December 6 and 7 and in Mumbai on December 9 and 10. The focus of the courses will be slightly different with the Chennai course aimed at lighting engineers and other lighting professionals while the course in Mumbai will be aimed at architects, designers and lighting professionals.

Both courses will focus on lighting technologies, human factors, and the appropriate application of lighting. The seminars will be designed to increase the participants' knowledge and awareness of energy-efficient lighting technologies, lighting application, and design strategies.

The three member LRC faculty will present an interactive seminar including lectures, hands-on demonstrations of lighting technologies, workshop sessions, and other information covering lighting for various settings. A lighting manual will be developed summarising the information provided in the seminars and giving participants a variety of tools to assist them to better select and apply lighting systems. The LRC will award continuing education credits and provide a continuing education certificate to each attendee of the seminars.

Details of the three member faculty are given below. Also given below are the content and programme for the two courses.

Specific topics to be covered in the Chennai course include:

The Language of Lighting - Nearly every field or profession has a language that is unique to its own practitioners. The field of lighting is no exception to this. Designers, specifiers, and manufacturers within the lighting industry use unique terms and concepts, which have evolved into professional usage over a period of time and have been officially defined by professional bodies. These terms represent important concepts in the practice of lighting. Presenters will review these important terms and concepts to assist seminar participants to better understand the field of lighting.

Lighting Technology - Presenters will review the latest and most efficient lamp, luminaire, ballast, and control technologies typically used in commercial settings. Participants will be taught how to evaluate these technologies for quality, energy efficiency, and

compatibility. Information will also be provided on new and emerging energy efficient lighting technologies such as light emitting diodes (LEDs). The objectives of this course section are to assist the participants to:

- understand the operating characteristics of various technologies commonly used in the lighting industry
- be able to compare these technologies and evaluate factors that will affect their performance
- be able to select among available lighting technologies to choose those that best meet an identified lighting need.

Lighting Audit, Evaluation, and Economic Analysis - This session will include information on how to conduct a thorough and consistent audit and evaluation of existing lighting conditions in a facility to identify opportunities for energy savings as well as improvements in the visual environment. Topics covered will include lighting measurement, illuminance and luminance assessment, occupant surveying, economic analysis, and other factors important to consider when conducting a lighting assessment.

Human Factors in Lighting - This session will include lectures and demonstration sessions covering an explanation of the human eye, lighting's impact on human vision, the effects of aging on vision and how to use lighting to accommodate the visual needs of older adults, lighting and task performance, and other human factors issues in lighting design. Information will be presented to help participants be able to:

- Analyse the visual requirements of a visual task, identify the aspects of lighting important for its performance, and make appropriate lighting recommendations
- Recognize and predict lighting conditions likely to cause discomfort, generate specific impressions, and/or modify behavior
- Understand the visual needs of the elderly and partially sighted.

Light and Colour - This session will include information on light and colour including correlated colour temperature of light sources, colour rendering metrics, spectrum, colour and the human visual system, and other application issues dealing with light and colour.

Lighting Calculation - This session will cover both point and lumen method calculations including calculation of coefficient of utilization (CU), light loss factors, and so on to assist in the design and specification of lighting equipment for interior spaces.

Daylighting Calculation and Analysis - This session will provide information on daylighting design and the calculation of daylight levels to assist in effective design of daylight buildings and evaluate options to improve daylight access and penetration in buildings; understand the impact of building site, building configuration, window and skylight configuration, materials, and glazing type on daylight penetration.

Lighting Design and Application - Presenters will review recommended practices and important issues in lighting application and design for commercial and industrial, interior and exterior settings. This will include a discussion of determining when it makes sense to retrofit an existing lighting installation versus a redesign and installation of a new system. This session will address important considerations in lighting design, and the design process for both interior and exterior applications. Content will include such issues as client requirements, human needs, architecture, energy-efficiency, technology and daylight integration, lighting control, and life-cycle costs. This session will be designed to allow participants to:

- understand the lighting requirements of interior and exterior spaces, including appropriate siting of lighting equipment and daylight availability analysis
- establish appropriate lighting criteria for efficient space utilization, task performance, and energy utilization
- develop designed illumination and lighting control systems, including fixture selection and design, and light source selection. Presenters will also review how to use new lighting technologies, equipment, and application techniques that have been proven effective in saving energy and maintaining acceptable lighting conditions.

Lessons Learned in Lighting Applications - Presenters will review case studies of lighting from a variety of commercial, residential, and industrial settings using the LRC's DELTA Portfolios and other available tools. Presenters will "take participants through" example settings explaining which technologies performed well in various applications and which did not. They will also review the various considerations that went into each lighting design.

The course in Mumbai will not include the Lighting Calculation, Daylighting Calculation and Analysis and Lighting Audit, Evaluation and Economic Analysis. Instead it will include Lighting Quality and Effective Daylighting of Buildings, details of which are given below.

Lighting Quality - This session will include information on lighting quality factors that should be considered when developing a lighting design. Factors discussed will include illuminance, luminance, glare, illuminance and luminance uniformity, colour appearance

and colour contrast, aesthetics, appearance of the space and luminaires, daylight integration and control, light distribution, modeling of faces and objects, and other factors that need to be addressed in lighting design development.

Effective Daylighting of Buildings - This session will provide information on daylighting design to assist in effective design of daylight buildings. This session will include information to help architects and engineers to:

- Effectively design and evaluate options to improve daylight access and penetration in buildings; understand the impact of building site, building configuration, window and skylight configuration, materials, and glazing type on daylight penetration;
- Design effective sun control systems to minimize glare and heat gain in daylighted spaces;
- Understand the economic impacts of various daylighting options and the costs and benefits of each; analyse the impact of various daylighting options on building costs, energy use, and indoor environmental quality;
- Objectively quantify the financial and human benefits of daylighting for building owners and developers; effectively communicate the value of daylighting to building owners, developers, and other decision-makers.

Lighting Research Center (LRC)

The Lighting Research Center (LRC) is the world's largest university based research and education institution dedicated to lighting. It employs an expert staff of more than thirty five researchers, educators, designers, and scientists dedicated to "advancing the effective use of light and thereby creating a legacy of positive change for society and the environment." The LRC is part of Rensselaer Polytechnic Institute, the oldest technical university in the United States located in Troy, New York.

The LRC's staff includes some of the world's leading vision and lighting scientists, engineers, physicists, designers, and energy-efficiency experts, who have been studying lighting for much of their careers. Their research has led to unique and innovative solutions that improve the visibility, efficiency, comfort, and safety of lighting installations.

Faculty

Russell P. Leslie, AIA, FIES, LC
Rensselaer Polytechnic Institute Architecture M. Arch., 1980
Professor, School of Architecture, Rensselaer Polytechnic Institute, 1999 to Present
Associate Director, Lighting Research Center, 1988 to Present
Principal, Russell P. Leslie Architect, PC, Architectural Firm, 1989 to 2005

Daniel Frering, LC
Manager of Education and Adjunct Assistant Professor Lighting Research Center

MS in Lighting (coursework in lighting technologies, human factors in lighting, leadership) Rensselaer Polytechnic Institute

Manages and develops the LRC Outreach Education Program, including teaching, curriculum development, identifying audiences, and securing funding for LRC non-degree programs, production, editing, and informational services. Administers the LRC lighting graduate education program

Yiting Zhu
Rensselaer Polytechnic Institute Architectural Science Ph.D., 2010

Rensselaer Polytechnic Institute Lighting M.S., 2006

Fudan University (Shanghai, China) Illuminating Engineering B.S., 2004

Lead Research Specialist, Lighting Research Center, Rensselaer Polytechnic Institute, 2010

For further information on registration for these courses please contact:

Chennai
Mr. R. Balasubramanian
9840055645
balu@Lii2011.in

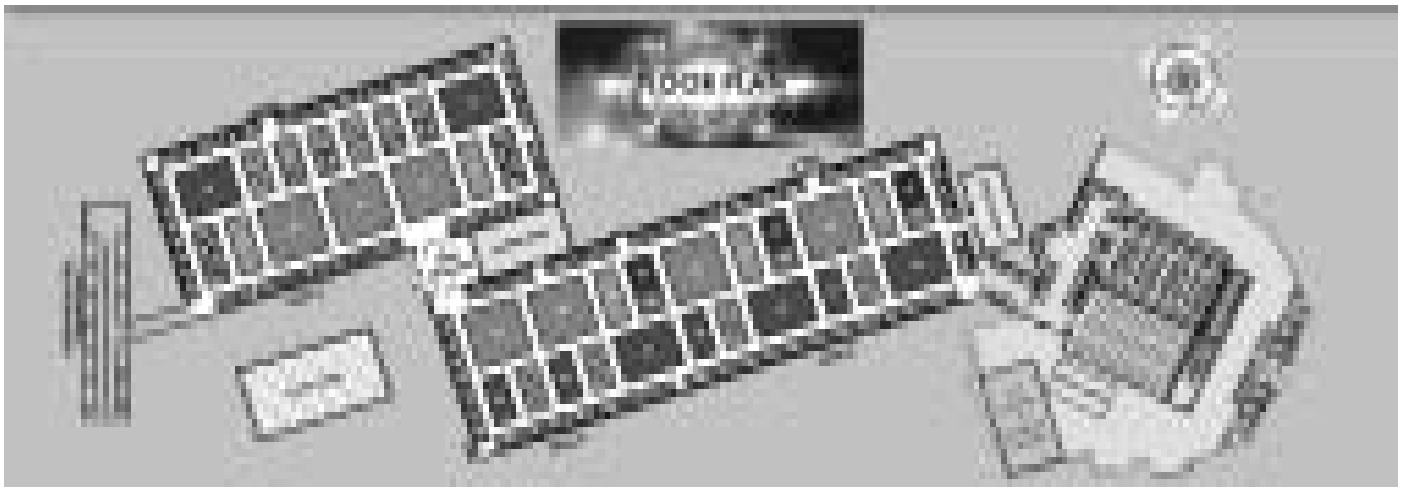
Mumbai
Mr. P.C. Barjatia
09370144389 / 09850630326
dr.prakash.b@hotmail.com

Lii 2011
LIGHT INDIA INTERNATIONAL

March 4-7, 2011, Chennai

The Lii2011 Exhibition is looking good with 45 companies having booked 4500 square metres of space. The total saleable area is 7980 sqm. Agents in China and Taiwan have blocked 900 and 350 square metres respectively. A full time secretariat under Mr. Raghavan former GM of ITPO is in place in Chennai to run the Exhibition and Conference.

Lii2011 is being co-sponsored by the Bureau of Energy Efficiency of the Ministry of Power (Government of India). The Central Public Works Department, Elcoma. and Lux Pacifica which represents 60% of the world's population



have also agreed to be Co-Sponsors (check out the revamped Lux Pacifica website at www.luxpacifica.org).

The International Conference will focus on "Sustainable Lighting - Smarter, Elegant and Energy Effective". The two day conference will have 4 sessions; the Inaugural and three technical sessions. The dates for the conference are March 5 and 6, 2011.

The Inaugural session will feature a celebrity speaker who is in the process of being finalised by the Technical Committee. Keeping in mind the concerns of the government, the users as well as the industry for green lighting, the technical sessions will focus on the following:

- Daylight Integration with Lighting and Architecture
- Urban Landscape Lighting (Street Lighting, Pedestrian Lighting, Monument Lighting and Garden Lighting)
- Retail Lighting

Each technical session will have 4 speakers with a duration of 2 hours. The Technical Committee is now in the process of finalising international and national expert speakers.

ISLE members are requested to spread the word about this major Lighting Event and to ensure that they personally attend. South India is progressing at a very fast pace and it is therefore very appropriate that we hold a lighting focused event in Chennai. Please look out at our website for information as we progress.

Display Profile

Residential, commercial, retail lighting
Industrial lighting
Street lighting
Security lighting
Environmental / Landscape lighting
City beautification lighting
Architectural lighting
Railway / Metro lighting
Airport & Runway lighting
Refineries / Mine lighting
LED lighting
Intelligent lighting
Lighting with non-conventional energy
Specialty lighting
Lighting accessories and controls
Power saving solutions
Testing, measuring instruments

For further information on stall bookings and conference registration contact:

Mr. R. Balasubramanian,
Hon. Secretary - ISLE Chennai State Centre
Mobile No: 91 9840055645
balu@Lii2011.in

Mr. S. Raghavan
Advisor - ISLE
Mobile No: 91 9790974048
sraghavan@Lii2011.in

DELHI STATE CENTRE

Silver Jubilee Lecture
July 14, 2010, New Delhi

To celebrate the Silver Jubilee of ISLE, the Delhi State Centre organised a Lecture by internationally acclaimed architect, urban planner and designer, Behr Champana head of Quantum AIP and Vice President of TVS one of the world's largest architecture firms. Mr. Champana who also delivered the Silver Jubilee Lecture in Bangalore is no stranger to ISLE as he has given outstanding presentations at Lii2005 and Lii2009. The abstract of the lecture is given below under Karnataka State Centre.

Dr. Ajay Mathur, Director General, BEE chaired the Silver Jubilee Lecture. A Panel of distinguished experts were invited to interact with Mr. Champana before inviting questions from the floor. The Panel included Mr. A.K. Jain, former Chief Architect DDA, Mr. R.K. Kakkar, Chief

Architect CPWD, Mr. Navin Krishen, Consultant and Mr. Jasbir Sawhney, Architect.

The lecture was preceded by high tea.

Mr. Abhijeet Vaish introduced the dignitaries and invited them to the dais. The welcome address was given by Mr. Gulshan Aghi, Vice President ISLE. Dr. Ajay Mathur made the opening remarks and introduced the speaker. The vote of thanks was given by Mr. A.K. Jain, Chairman, Delhi State Centre.

Mr. Gulshan Aghi, CEO (LBG) and Executive Director, Surya Roshni invited the guests for the cocktail dinner being sponsored by Surya Roshni. Before adjourning for dinner Mr. S. Chakraborty announced the setting up of a state of the art lab for LEDs and invited the guests to visit the Surya Roshni stall adjacent to the cocktail dinner venue.

The lecture attracted a large number of members and others interested in lighting including the Director General of CPWD, Mr. B.K. Chugh. Mr. Champana was complimented for his highly informative and professional approach to the challenges faced by architects and lighting designers in the future.

Mr. Champana being felicitated

INDORE LOCAL CENTRE

Seminar on Light Pollution
June 27, 2010, Indore

As part of its programme of monthly seminars, the Indore Local Centre of ISLE organised a seminar on Light Pollution on Sunday 27th June 2010 at Hotel South Avenue in Indore. The seminar was delivered by Dr. Alok Mittal, Director, Indore Indira School of Career Studies.

Alok Mittal

He explained that light pollution, also known as photo pollution or luminous pollution, is excessive or obtrusive artificial light. Light pollution is any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste.

Light pollution is a side effect of industrial civilization. Its sources include building exterior and interior lighting, advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues. It is most severe in highly industrialized, densely populated areas of North America, Europe, and Japan and in major cities in the Middle East and North Africa like Cairo. It obscures the stars in the night sky for city dwellers, interferes with astronomical observatories, and, like any other form of pollution, disrupts ecosystems and has adverse health effects.

Like other forms of pollution (such as air, water, and noise pollution) light pollution causes damage to the environment. The case against light pollution is strengthened by a range of studies on health effects, suggesting that excess light may induce loss in visual acuity, hypertension, headaches and increased incidence of carcinoma, changes in melatonin level enhancing the risk of breast and other forms of cancer in human beings, endangering flora and fauna, distracting migrating birds, affecting marine life, sea turtles, disturbing mating activity of reptiles, salamanders, bats, etc.

Light pollution can be addressed by changing the habits of society, so that lighting is used more efficiently, with less waste and less creation of unwanted or unneeded illumination, switching off lights after business hours are over, using shielded electrical fixtures, enacting legislations to curb light pollution, etc. Several industry groups have recognized light pollution as an important issue. For example, the Institution of Lighting Engineers in the United Kingdom provides its members information about light pollution, the problems it causes, and how to reduce its impact. Since the early 1980s, a global dark-sky movement has emerged, with concerned people campaigning to reduce the amount of light pollution.

The seminar was attended by Mr. Akhilesh Jain, Chairman, Mr. Dinesh Wadhwa, Secretary, Mr. Rajendra Raje, Mr. Anil Pundlik, Mr. Bharat Rawlani, students from professional institutes and other members of ISLE Indore Local Centre.

KARNATAKA STATE CENTRE

Silver Jubilee Lecture
July11, 2010, Bangakore

ISLE Karnataka State Centre organised a Silver Jubilee Lecture by Ar. Behr Champana at the Century Club in Bangalore on July, 11, 2010.

Mr. B.R. Pai lighting the lamp with Messrs. Swamy, Jaisim, Jairaj and Champana.

The Program had very good attendance with over 200 Architects, about 50 engineers and 15 real estate developers. The Chief Guest for the program was Mr. K. Jairaj, the Additional Chief Secretary to the Government of Karnataka. Chairman IIA, Karnataka Mr. K. Jaisim and Chairman ISLE, Karnataka Mr. M.S.N. Swamy chaired the programme.

Mr. Behr Champana presented statistics and gave his analysis of the important issues related to urban development. Using examples from around the world he illustrated how the requirements differ from one country to another and even from region to region due to cultural, religious, climatic, political and economic factors. The presentation was supported with brief case studies of some development initiatives which succeeded, and many which have boomeranged. Deriving from the presentation he gave a few suggestions about the factors that Indian professionals - Architects and Engineers - should apply to influence development. He highlighted the differences in the decision making process between countries like UAE and China on one hand and in the democratic countries like India on the other.

Mr. Behr Champana

Another important highlight was his analysis of the manner in which India has come out unscathed from the global recession, as a result of non-dependence entirely on the developed world market.

Mr. Jairaj, Additional Chief Secretary to the Government of Karnataka, gave the developmental picture in the state and highlighted the strides taken by Karnataka in the field of power and in particular the renewable sources. He appreciated the move of a joint initiative from the IIA and ISLE. He gave the statistics of the development in Wind energy, Biomass and Micro Hydel. He described current efforts to step up the development of SPV systems, with a focus on the arid areas of Karnataka. The statistics with regard to solar heating systems are not well known and the participants were thrilled to learn that Bangalore has the distinction of having the largest area of solar water heating collectors among all the cities in the world.

Earlier it had been mentioned by Mr. Bhavani Prasad that ISLE and IIA had taken the initial steps to form an apex association of all professionals, such as Architects, Structural Engineers, Electrical, Air-Conditioning, Plumbing, Fire protection, Horticulture and Landscaping professionals, who have to join together for improving the built environment. Prof. Jaisim mentioned that in February as a first step, an event with the Structural Engineering World Congress had been successful and that this was the second step with the lighting professionals. Similar activities with professionals of HVAC, Plumbing, Fire and Landscaping are planned in the near future.

Given below is an abstract of Mr. Champana's lecture.

Abstract of Silver Jubilee Lecture

Many of the worlds great modern developments and the future of architecture may or may not apply or be relevant to the Indian subcontinent and to future growth in India. Issues for India are different. The lecture will focus on what should guide the Indian government, developers, contractors, architects, planners, designers, and engineers. in a sensible approach. It will cover the sensibilities of the diverse regional Indian cultural heritage, their socio-economic factors, and how not to focus just on sustainable developments, but stress the need to grow sustainable "human" developments to educate and ensure the creation of a new generation with an "inherent will" to protect the resources, environment, the rich knowledge and educational talent pool based on Indian traditions for all future generations to enjoy.

Mr. Swamy and Mr. Jaisim honouring the Chief Guest and Speaker

RAJASTHAN STATE CENTRE

Election

The election for new Committee of Rajasthan State Center was conducted by the Convenor Mr. A. K. Jain nominated by the members on June 26, 2010. The following were elected for the session 2010-11 to 2011-12.

Mr. R.S. Saxena
Mr. Manoj Gupta
Mr. Prashant Bajpai
Mr. G.S. Charan
Mr. Arvind Khatri
Mr. V.K. Verma
Mr. Pramod Kashyap
Mr. Manish Chandwani

The members then elected the following office bearers

Chairman	-	Mr. R. S. Saxena
Hon. Secretary	-	Mr. Manoj Gupta
Hon. Treasurer	-	Mr. Prashant Bajpai

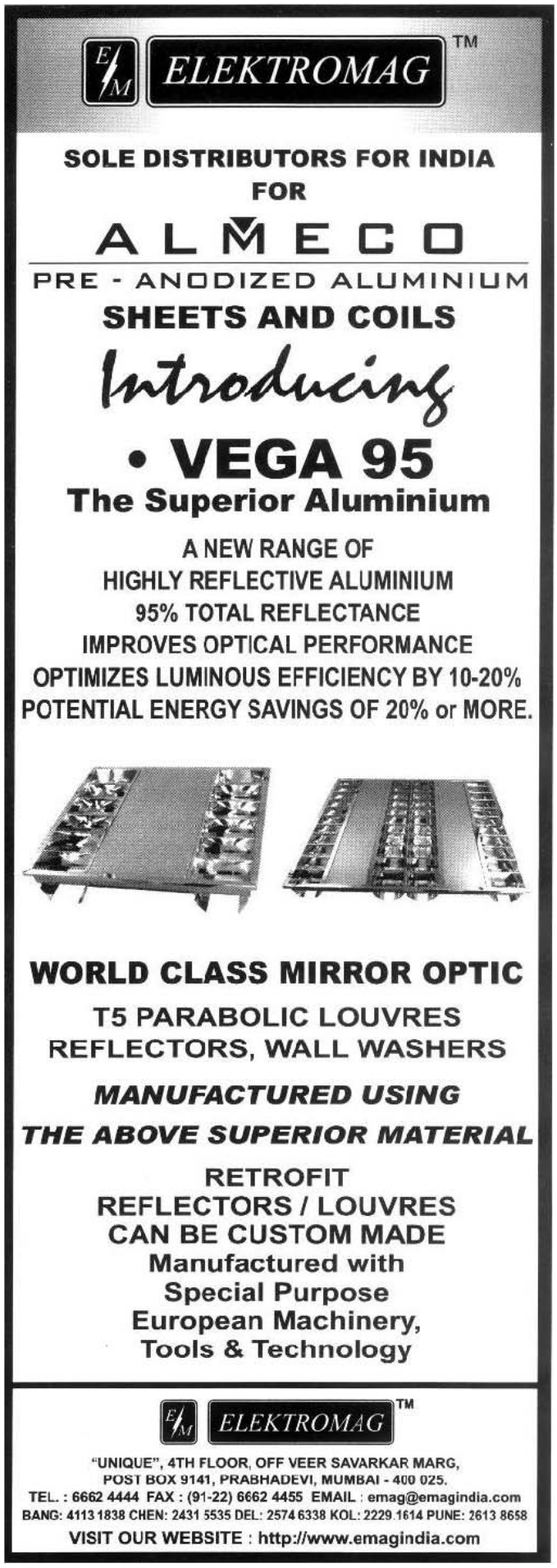
and assigned responsibilities to the other committee members as given below:

Mr. G. S. Charan - Technical Committee
Mr. Arvind Khatri - Event Organization
Mr. V. K. Verma - Finance Committee
Mr. Pramod Kashyap - Membership Committee
Mr. Manish Chandwani - Education Committee

Technical Presentations
May 1, 2010, RTU, Kota

ISLE Rajasthan State Centre organised a technical presentation at Rajasthan Technical University (RTU), Kota on 01.05.2010. Students and Faculty Members of RTU and Members of ISLE participated in the event. Mr. O. P. Changani, Director, UCE, RTU Chaired the function. Other dignitaries including Mr. R. S. Saxena Chairman, ISLE Rajasthan State Centre, Mr. B. P. Juneja, Mr. Rajeev Gupta, Mr. D.K. Yadav and other faculty members of RTU were present.

Mr. R.S. Saxena being felicitated



Mr. D. K. Yadav introduced the dignitaries on the dias. An introduction to ISLE was given by Mr. R.S. Saxena, Chairman, ISLE, Rajasthan State Centre. Mr. Sirshendu Pal of Surya Lighting delivered the key technical presentation on "An Overview of Lighting Technology". Mr. Girja Shankar Charan, Executive Engineer, PWD presented the Hindi version of the Oscar Award winning movie "An Inconvenient Truth" on Global Warming and Energy Efficiency. The programme ended with vote of thanks to the all participants given by Mr. P K Jain, Executive Engineer, PWD.

Mr. Sirshendu Pal

Opening of ISLE Student Chapter
May 14, 2010, PIET Jaipur

The first Student Chapter of ISLE Rajasthan State Centre was opened on 14th May 2010 at the Poornima Institute of Engineering & Technology. The diginitaries of the program included the Chief Guest Dr. S. M. Seth, Director General, Poornima Group of Colleges, Guest of Honor, Mr. R. S. Saxena, Special Guests Mr. G. S .Charan and Mr. Rahul Makkar.

Mr. R.S. Saxena

The programme was as follows:

Key Note Speech by Dr. S. M. Seth on "Crucibles of Learning",

Speech by Mr.R. S. Saxena on "Introduction to ISLE",

Speech by Mr. Manoj Gupta on "Present and Future Activites and Programs - B.Tech. 1st Year".

Dr. S. M. Seth

Mr. Manoj Gupta

On this occasion the Newsletter and Posters was released by the dignitaries. An Exhibition was also organized on Projects and Posters made by students. After the Cultural and Prize distribution ceremony the program ended with vote of thanks to all participants.

Quality Control Workshop
July 13, 2010, Bharatpur

In association with the PWD Electrical Division, Bharatpur a Quality Control workshop was organised by the Rajasthan State Centre of ISLE on 13th July 2010. Electrical engineers of the PWD department and representatives from electrical contractors and members from electrical companies like Finolex, Engineers & Engineers Electrical were the main participants. Mr. S.R. Tungaria, SE PWD Bharatpur chaired the function. Other participants were Mr. R.S. Saxena, SE Kota and Chairman of ISLE Rajasthan State Centre; Mr. S. V. Saxena, XEN PWD Quality Control & Monitoring PWD Jaipur; Mr. Girja Shankar, XEN Electrical Division, PWD, Bharatpur; Mr. Prashant Singh, Dy. Manager, Finolex; Mr. Bhupendra Singh Manager, Engineers & Engineers Electrical.

Mr. Girja Shankar Charan introduced the Dignitaries on the dais and highlighted the need for a QC workshop. Mr. R.S. Saxena, Chairman, ISLE Rajasthan State Centre gave a brief introduction to ISLE and its activities. Mr. Prashant Singh, Dy. Manager of Finolex presented a movie on "Appropriate Wiring Practices". Mr. S. V. Saxena, Executive Engineer, PWD Jaipur gave a presentation on "Testing of Wires". Mr. Bhupendra Sharma, Executive Engineer, PWD Jaipur gave a presentation on "QC aspect of electrical panels". Mr. R.S. Saxena, Superintending Engineer, PWD Kota discussed Quality Control measures with emphasis on problems and solutions in Q C, and best practices in energy efficient lighting in government buildings. The vote of thanks was given by Mr. Anil Kumar Sahu, Assistant Engineer, PWD, Electrical Sub Division, Dholpur.

Silver Jubilee Celebration
July 23, 2010

ISLE, Rajasthan State Centre, Jaipur organised their Silver Jubilee celebration on Friday, 23 July 2010 at Nehru Bhawan Auditorium, in Jaipur. The programme was attended by more then two hundred persons including GB members of ISLE, members of Rajasthan State Centre,

Mr. Gulshan Aghi, Vice President ISLE

representatives of organising partners of the event, Crompton Greaves, Havells India, Surya Roshni, Bajaj Electricals and Lightron, members of the Students Chapter and guests from various organisations.

The programme started with Lighting of Lamp by the Dignitaries; Chief Guest, Mr. Gulshan Aghi, Guest Of Honor, Mr. H.S. Mamak, Special Guests, Mr. R. Nagarajan, Mr. P.K. Majumdar, Mr. R.S. Saxena, Chairman, ISLE, RSC and Mr. Manoj Gupta, Secretary, ISLE, RSC.

This was followed by the welcome address by Mr. R.S. Saxena. Mr. Gulshan Aghi gave the presidential address and Mr. H.S. Mamak addressed the gathering with his thoughts on lighting giving emphasis to the educational issues related to lighting.

In technical session the following presentations were made:

Monument Lighting in the Modern Era by
Mr. Sanjay Biswas, Crompton Greaves

LED Challenges and Promises by
Mr. S. Chakraborty, Surya Roshni

Green Buildings by
Mr. K. Naveen, Bajaj Electricals

Mementos were presented to all the dignitaries and a Certificate to Poornima Institute of Engg. & Technology, Jaipur for opening the first Student Chapter in Rajasthan.

Governing Body Members

An interesting Cultural Programme included Bhawai Dance, Dance by Students, Kalbelia Dance, Patriotic Poetry by Mr. Sushil, Ghoomar Dance, Poetry by students, Chari Dance, Padharo Mhare Desh. The cultural programme presented by students was appreciated by all. At the end the vote of thanks was given by Mr. Manoj Gupta, Secretary ISLE, RSC. The Event organising partners displayed the latest lighting products in their range focusing on LED lighting and energy efficient lighting. The programme ended with dinner.

The Cultural Programme

The following day the Governing Body held its 16th meeting in Jaipur.

Messrs. P.K. Majumdar, Gulshan Aghi and R. Nagarajan at the GB Meeting

CIE ACTIVITY

The 27th CIE Session of the CIE
11-15 July 2011, Sun City, South Africa

Format Of The Session

The 27th Session of the CIE will be held in Sun City, South Africa, from 10 to 15 July 2011: According to the proposed time table the Session will be divided into two parts:

1. The conference part from 11 to 15 July 2011 (morning) with invited papers, presented papers, presented posters, posters at the stand and workshops.
2. The technical meetings of the Divisions from 11 to 15 July 2011 (afternoon).

The Session will begin on 10 July and will end on 15 July. The conference part has provision for four invited papers, 74 presented papers and posters as well as a number of posters presented at the stand and up to six workshops. For the posters presented at the stand, ample room will be available.

Call for Papers

Prospective contributors are invited to submit papers dealing with new results in the field of light and lighting. The subjects of the papers should be relevant to the work and the terms of reference of the seven CIE Divisions and their Technical Committees. (For detailed information on domains of interest, the CIE website should be consulted.) Contributions published before will not be accepted. Papers dealing with questions of direct concern to the work of the Divisions will get priority.

Procedure for Submission of Papers

Contributions can be only submitted electronically.

Electronic submission (will be activated soon): for details on the electronic submission, please visit the CIE website (**http://www.cie.co.at/ and click on "Conferences"**).

The extended abstract should be submitted in English with a minimum of 500 and a maximum of 1000 words. It should be sufficiently specific and informative and should make clear the novelty the author wishes to describe, referring to results and practical applications. Based on this information the Board of Administration will make decision on the acceptance of the paper and on whether it will be given orally in a paper session, or as a poster presented at the stand.

The submissions must arrive at the Central Bureau via the Online Abstract Submission System of the Session Website by: 15 September 2010.

Authors will be informed on the decision of the Board of Administration by 30 November 2010.

The authors selected (or one of their co-authors) have to register for the conference to present their paper. After the acceptance of their papers authors will be provided with information indicating format and deadlines of the written contributions for inclusion in the Proceedings.

New CIE National Committees

We are happy to inform you that the following New CIE National Committees have approved for admission:

Malaysian CIE National Committee
No. 5-B Jalan Gelugor
Off Jalan Kenanga
55200 Kuala Lumpur
MALAYSIA

CIE National Committee of Singapore
Lighting Association of Singapore
c/o Stellar Corporate Advisory Pte Ltd
100 Jalan Sultan Suite 4
#03-17 Sultan Plaza
Singapore 199001

CIE-Taiwan
c/o CMS/ITRI
attn. Hui-Chung Ma
Bldg. 16, 321, Kuang-Fu Road Sec. 2
Hsinchu, Taiwan
TAIWAN, ROC

New TCs

The following new TCs have been established:

TC 1-80: Research Methods for Psychophysical Studies of Brightness Judgements

Chair: Steve Fotios (UK)

Terms of Reference: To report on research methods (both research design and statistical analysis) for psychophysical studies of spatial brightness judgements. The aim is to bring best practices from psychology into the wider awareness of people in the lighting community who wish to use such tools in their own work, to avoid errors that plague the existing literature.

TC 1-81: Validity of Formulae for Predicting Small Colour Differences

Chair: Klaus Richter (DE)

Terms of Reference: To evaluate available formulae for small colour differences (<~2.0 CIELAB). 2.To define a visual threshold colour difference.

TC 1-82: The Calculation of Colour Matching Functions as a Function of Age and Field Size

Chair: Jan Henrik Wold (NO)

Terms of Reference: Following on from CIE 170-1:2006, to recommend a procedure for calculating XYZ-like colour matching functions from cone fundamentals, as a function of age and field size. 2. To deliver a computer programme for the calculations.

TC 3-50: Lighting Quality Measures for Interior Lighting with LED Lighting Systems

Chair: Martine Knoop (NL).

Terms of Reference: To review relevant CIE publications and standards to evaluate the suitability of existing lighting quality measures when applied to tertiary (commercial) interior light-emitting diode (LED) lighting systems. To identify the gaps and weaknesses in existing quality measures, exhibited in one of two ways: either the criterion is valid, but the evaluation method is not (e.g., colour rendering) or a new criterion needs to be taken into consideration (e.g., overhead glare, binning). 2) To prepare a Technical Report, which will include the findings of the review and recommendations for new lighting quality measures and evaluation methods, as well as suggestions for new research if appropriate quality measures and evaluation methods are missing.

CIE PUBLICATIONS

CIE Draft Standard
ILV: International Lighting Vocabulary
CIE DS017.2/E:2009

CIE has published Draft Standard CIE DS 017.2/E:2009 ILV: International Lighting Vocabulary.

It is an update and extension of the contents of the 4th Edition of the International Lighting Vocabulary, which was a joint publication of the CIE and the IEC (International Electrotechnical Commission) and provided definitions of some 950 terms related to light and lighting. The terms and definitions of this publication have been completely reviewed. In addition, a large number of new terms and definitions have been introduced.

The aim of this Draft Standard comprising some 1500 terms and their definitions is to promote international standardisation in the use of quantities, units, symbols and terminology in this field. CIE DS 017.2/E:2009 ILV: International Lighting Vocabulary has been approved by the Board of Administration of the CIE. It comprises 196 pages and presents the definitions of nearly 1500 terms related to light and lighting.

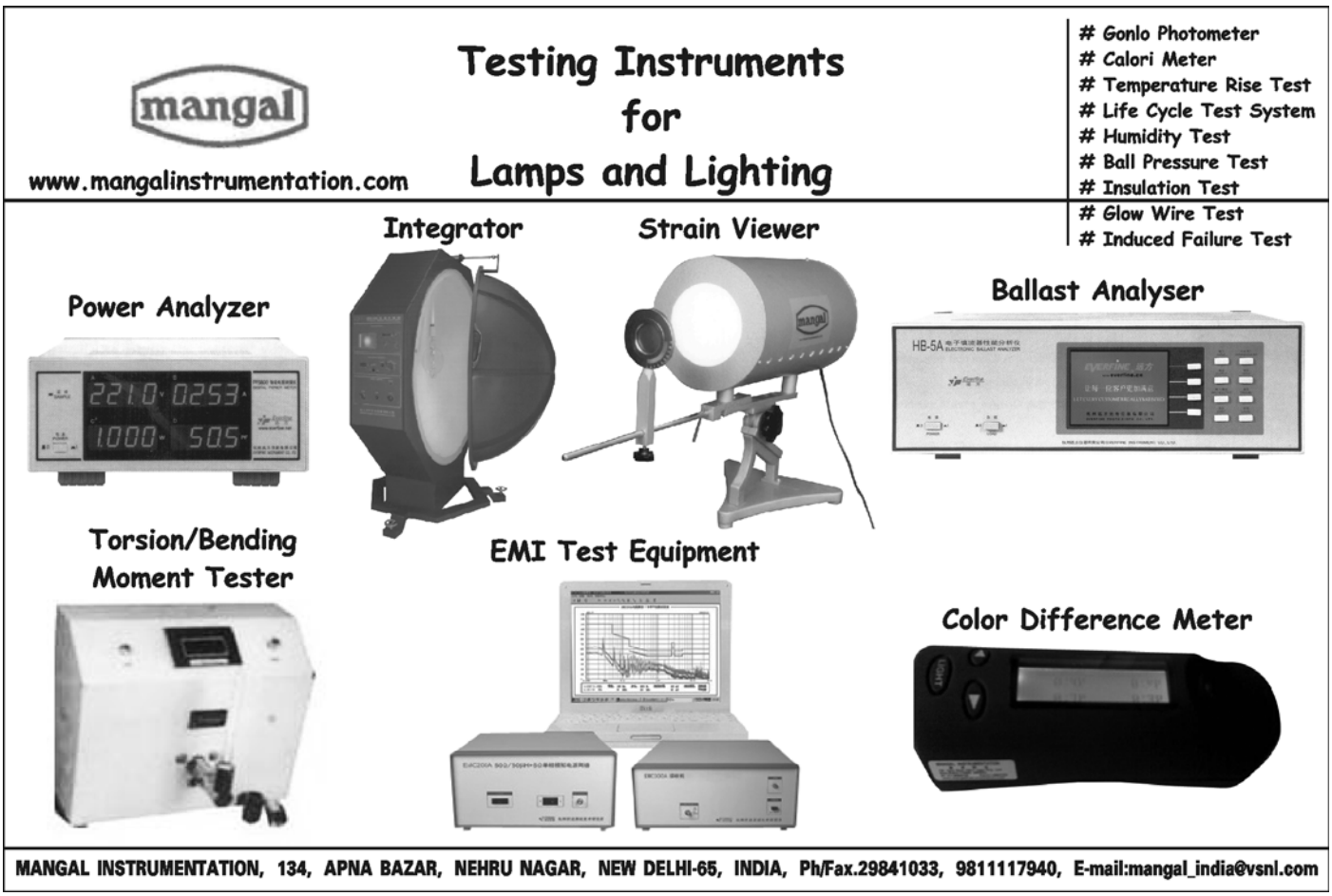
The Draft Standard has been sent to CIE National Committees for comments and sales to interested parties. It is still subject to changes and may not yet be referred to as a CIE Standard. When approved by the CIE NCs, it will be published as a CIE Standard and later on as a joint ISO/CIE standard.

The price of this Draft Standard is € 40, (Members of the CIE National Committees get 50 % discount.

Performance Assessment Method for Vehicle Headlighting Systems
CIE 188:2010

This report has been produced to meet the need for a standardised, accurate and reliable method of assessing the photometric performance of vehicle headlights. It considers the requirements of headlight performance in terms of road scene illumination and limitation of glare, and the assessment of performance in terms of lane guidance and the detection of pedestrians and objects. The work undertaken to define the assessment method is summarised along with the results of the validation testing. A standardised photometric assessment method and calculation procedure for use by manufacturers and assessment organisations is provided.

This Technical Report consists of 86 pages with 85 figures and 8 tables. The price of this publication is € 72,



(Members of the CIE National Committees get 50 % discount).

Lighting of Roads for Motor and Pedestrian Traffic

CIE 115:2010, 2nd Edition

This report is a revision and update of CIE 115-1995 "Recommendations for the Lighting of Roads for Motor and Pedestrian Traffic".

Since it was issued in 1995 power consumption and environmental aspects have become more important and at the same time, the improved performance of luminaires and lamps, and especially the introduction of electronic control gear, has made it possible to introduce adaptive lighting for roads for motorised traffic, conflict areas and areas for pedestrians.

A structured model has been developed for the selection of the appropriate lighting classes (M, C, or P), based on the luminance or illuminance concept, taking into account the different parameters relevant for the given visual tasks. Applying for example time dependent variables like traffic volume or weather conditions, the model offers the possibility to use adaptive lighting systems.

The publication replaces CIE 115-1995 "Recommendations for the Lighting of Roads for Motor and Pedestrian Traffic".

The publication is written in English, with a short summary in French and German. It consists of 43 pages with 1 figure and 18 tables, and is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).

The price of this publication is € 80, (Members of the National Committees of the CIE get 50% discount).

Calculation of Tunnel Lighting Quality Criteria

CIE 189:2010

Experience of making road tunnel lighting designs in accordance with publication CIE 88:2004 has shown that there are some aspects of calculation of the different lighting criteria where more specific guidance to the designers is necessary.

This document explains how the tunnel environment differs significantly from the open road situation. In particular, the presence of walls along the traffic road involves reflection effects between different surfaces. The variation of luminance level along the tunnel, the changes in the lighting installation along the entrance section of the tunnel and the use of different lighting systems in different parts of the tunnel introduce more complexity in the lighting calculations. The report gives guidance on determining the method for calculating the relevant lighting quality criteria for tunnel situations.

The publication is written in English, with a short summary in French and German. It consists of 18 pages with 4 figures, and is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).

The price of this publication is € 56, (Members of the National Committees of the CIE get 50% discount.

Calculation and Presentation of Unified Glare Rating Tables for Indoor Lighting Luminaires

CIE 190:2010

This report has been prepared to assist luminaire suppliers and lighting designers inthe production of UGR tables for luminaires in preset arrays at 1:1 spacing to height ratio. This data is needed for the verification of conformity to the limiting UGR by the UGR tabular method specified in clause 6.2 of the Standard ISO 8995-1:2002(E)/ CIE S 008/E:2001 "Lighting of Workplaces - Part 1: Indoor". The limiting UGR values are recommended in clause 5 of this standard. The report makes use of the basic UGR equation, described in CIE 117-1995, gives tables of preset values for the standard conditions and in step by step describes the calculation process needed to generate the uncorrected UGR table. The process is further demonstrated by a worked example of UGR calculation for a disymmetric distribution luminaire in a room 2H × 4H. The report also gives the uncorrected UGR table for this luminaire which can be used to validate software designed for the production of the UGR table.

The publication is written in English, with a short summary in French and German. It consists of 29 pages with 4 figures and 8 tables, and is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).

The price of this publication is € 72, (Members of the National Committees of the CIE get 50% discount).

CIE Draft Standard DS 021.2/E:2010

This Draft Standard specifies a method to accurately and reliably assess the photometric performance of vehicle headlighting systems, to enable the performance of different systems to be compared. The requirements are given in relation to road scene illumination and the limitation of glare, and the performance is assessed using parameters relevant to lane guidance and the detection of pedestrians and objects.

The Draft Standard includes a measurement and calculation procedure. It does not specify the format of an assessment report.

continued on page 23

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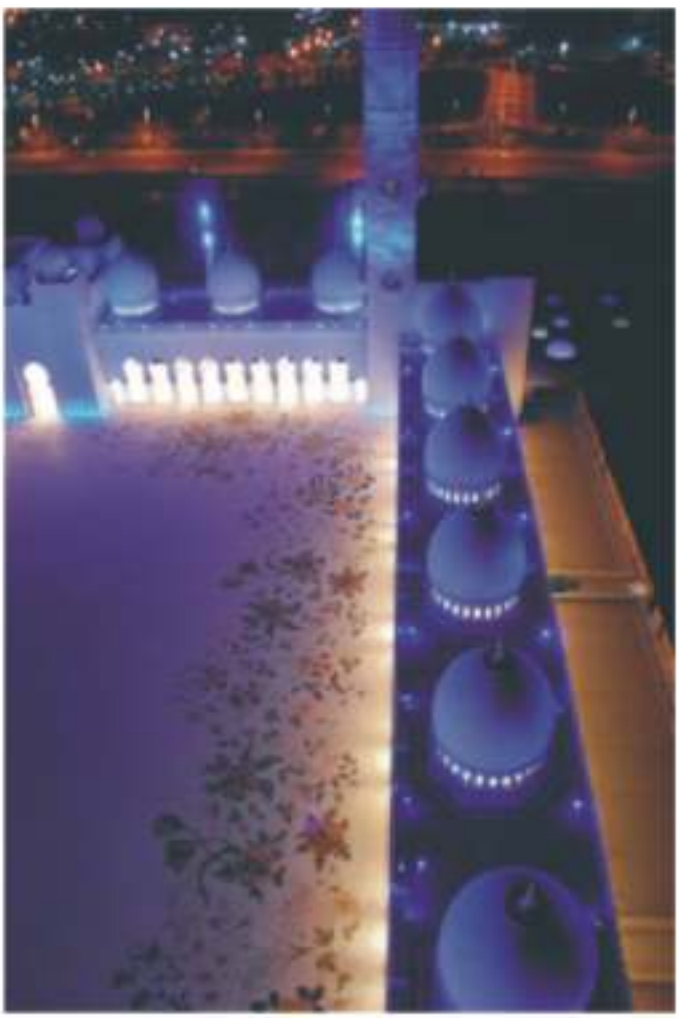
SHEIKH ZAYED BIN SULTAN AL NAHYAN MOSQUE, EXTERIOR LIGHTING

ABU DHABI, UAE

The brief for the Sheikh Zayed Bin Sultan Al Nahyan Mosque, Exterior was to tell a story after dark using light that was respectful and dignified, and to create a symbolic light icon.

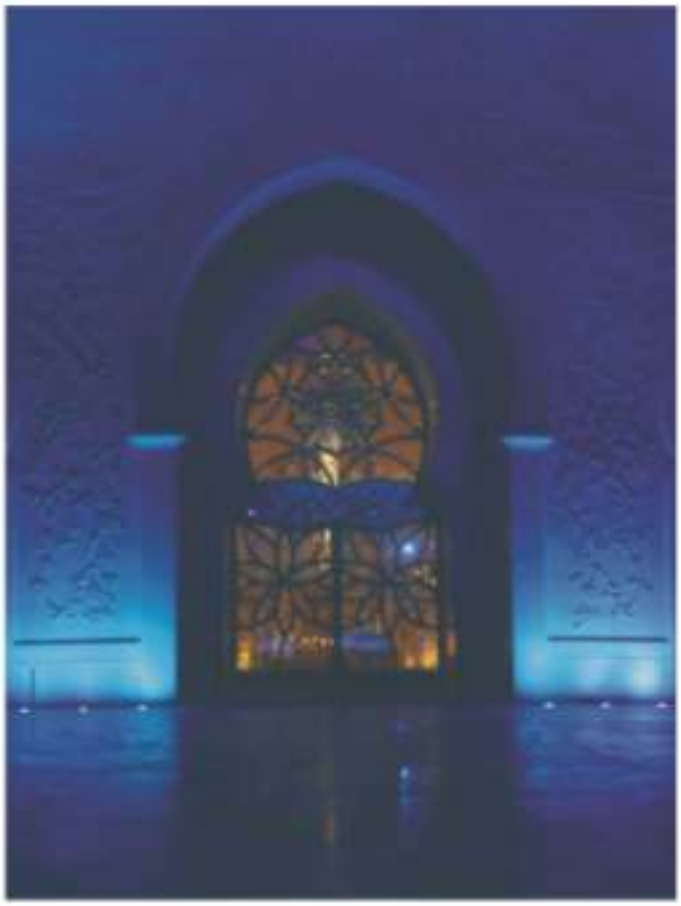
Judges praised the project for its daring and completely fulfilled concept. "Hats-off to the designers for having the nerve to propose it, and to the client for having the courage to say yes," one judge remarked. "The magic of this creation conceals an astounding amount of work, and exhibits a true appreciation of all nature's gifts on the part of the owner."

The inspiration was the moon, with wisps of cloud moving across its face. The Islamic religious calendar is based upon the lunar calendar and the phases of the moon. The building changes subtly across the lunar cycle, becoming bathed in cool white light at the full moon. There are then seven subtle color shifts every two evenings from white to the deep blue that signifies no moon. The viewer is never able to perceive the building changing from one color to the next.



Islamic prayers are always made facing Mecca and the lighting designers wished to respect and reinforce this directionality. The projected cloud direction is always from Mecca, slowly wrapping around the domes and minarets and drifting across the facades. This was achieved using external quality profile projectors with motorized gobo wheels. This simple idea of movement was an immense technical challenge requiring construction of a 3D CAD model to aid locating and focusing each fixture (over 1200 units), ensuring the coverage was correct and the directionality of the texture was achieved. The control system was specially developed and required considerable programming skills.

Each projector was equipped with custom edge framing to avoid light spill past the domes and facades. All domes are carefully, fully lit, unlike a majority of domes in the region where the upper-third are dark.



Crucial in terms of visual appearance that columns and building facades were grounded, in-ground uplights are also integrated into the color shift. Custom designed, internally accessible totems house fixtures away from the building, ensuring easy maintenance.

Maintainability was a crucial issue for the designers. The luminaire developed for this project includes fault reporting. In the event of a lamp, data or motor failure, the system provides daily maintenance reports. Long-life metal halide luminaires were used wherever possible to keep power consumption down. Only two lamp types were used in the exterior lighting of the Sheikh Zayed Bin Sultan Al Nahyan Mosque.

This is a lighting project that speaks of respect, dignity and character, underwritten by a creative technical approach on a massive scale.

LIGHTING DESIGN

Jonathan Speirs
Keith Bradshaw
Iain Ruxton
Carrie Donahue Bremner
Francis Milloy
Malcolm Innes
Sandra Downie
Speirs & Major Associates

PHOTOGRAPHY

© Alan Toft

FIRST NATIONAL BANK METRO CROSSING GLASS FEATURE WALL

COUNCIL BLUFFS, IA USA

The brief for the First National Bank Metro Crossing – Glass Feature Wall was to create an architectural feature that would help set it off from the adjacent architectural structures and create a place of visual interest and pride for the community. The architect developed the concept of the luminous glass wall slicing through the entire building. Aided by the graphic designer and lighting designer, this glass curtain wall became activated with the addition of a patterned film in a prairie grass motif and with dynamic LED lighting.

"Bringing the gift of such a glorious light sculpture to an open site for the enjoyment of all is a credit to the owners and the designers," an awards judge stated. "It is beautifully and carefully executed."

The lighting designer and the graphic designer were charged by the architect and owner to enhance this glass façade at night to maximize its exposure to the local community. The owner's requirement for the lighting designer was to internally illuminate the façade from the top of the structure so as to minimize lighting trespass and maximize the visual effect, maintaining a similar lighting gradation throughout the entire length of the wall without having visible fixtures cluttering the site.

LIGHTING DESIGN
David Raver, IALD, LC
RDG Planning & Design

PHOTOGRAPHY

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Tom Kessler Photography

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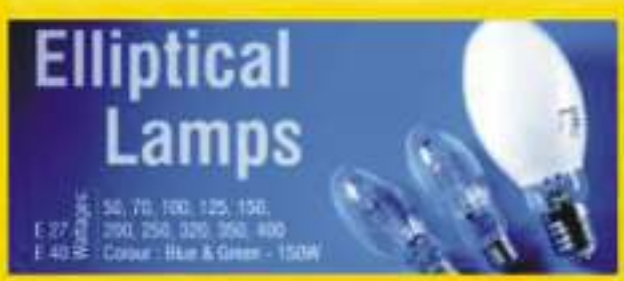

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Chennai 600 045, India. Tel. : (044) 2262 5567 / 2262 3094,
Fax : (044) 2262 5569, E-mail : baranee@vlindia.com,
Website : www.venturelighting.com

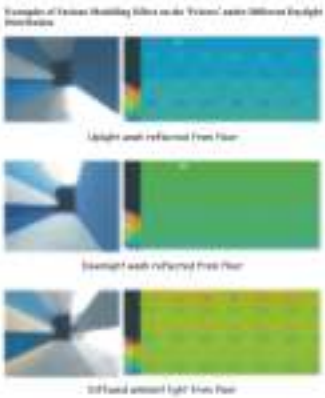
NEW ACROPOLIS MUSEUM

ATHENS, GREECE

The brief for the New Acropolis Museum was to use daylight as the theme to add a fourth dimension to the ancient collection as well as the architecture. The design ensures optimum display lighting for the artifacts balanced with a daylit ambience throughout, re-creating a sense of the outdoor conditions under which the sculptures were originally seen.

"The elegance and sophistication of the daylight integration in this project is very appealing," stated one judge." The graceful mood it creates provides the perfect setting for these objects that were designed to be illuminated by daylight."

The architectural lighting is minimal yet plays a complimentary role navigating the visitor through the interiors. The holistic design approach choreographs the play of light and shadow with both daylight and architectural light enhancing the experience and revealing the form and the unique detailing of the exhibits.



"This project demonstrates an amazing use of daylighting as a means of achieving energy efficiency and environmental responsibility, without sacrifice to the level of sensitivity required when illuminating antiquities," another judge stated.

LIGHTING DESIGN
Florence Lam
Vasiliki Malakasi
Matt Franks
Katie Davies
Arup Lighting

PHOTOGRAPHY
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© Peter Mauss & Esto
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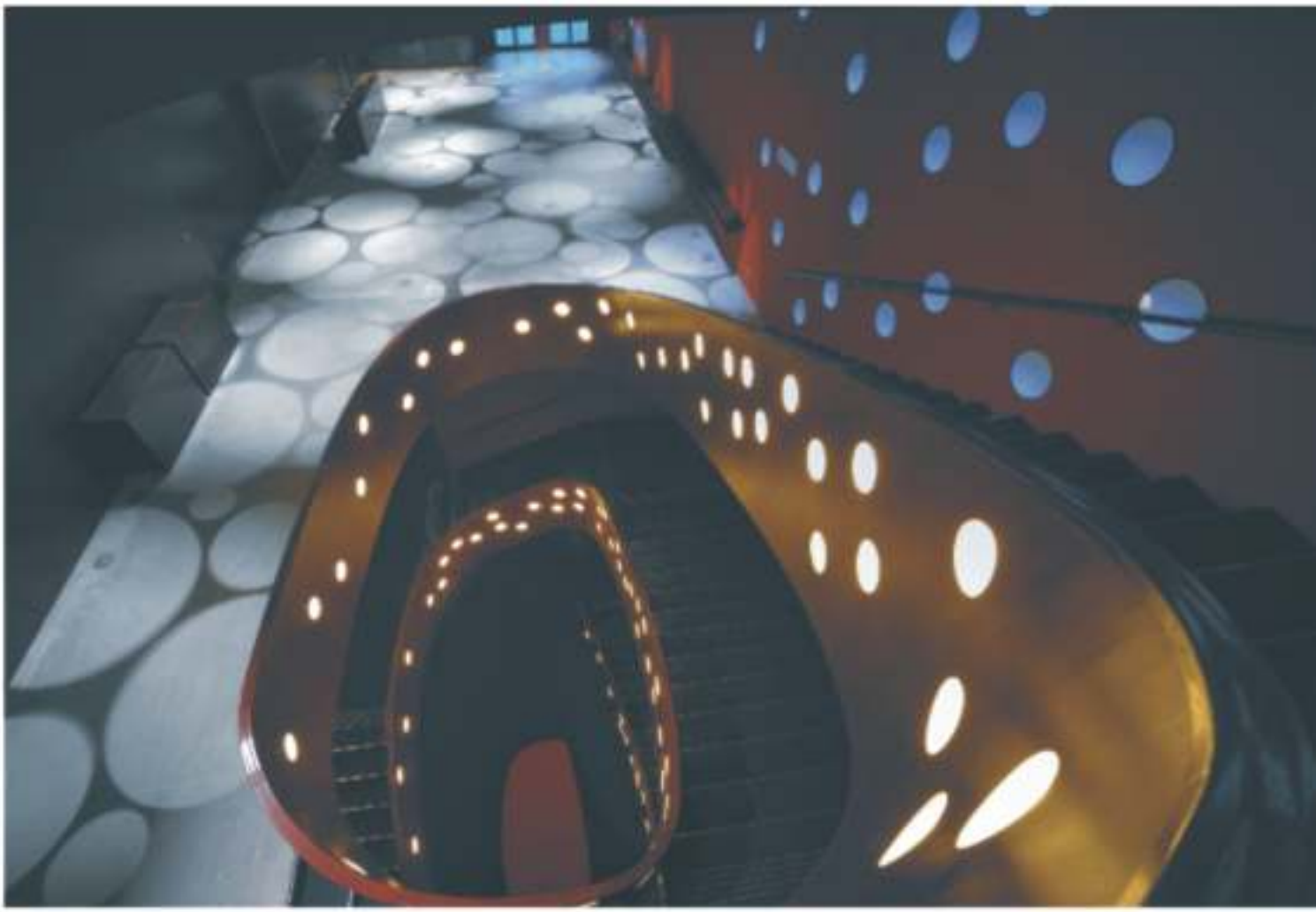

ZA –KOENJI

TOKYO, JAPAN

ZA-KOENJI, a public theater located in a suburb of Tokyo, is conceptually imaged as a tent made of steel. This project was awarded a special citation for whimsical expression of fun through light and architecture

The interior space is filled with many types of round-edged light from the ceiling, which can be recognized as "Komorebi" light, in Japan described as sunshine filtering through foliage. Daylight blue appears through a round hole on the wall in the lobby, and the downlights illuminate the floor in random patterns created by custom projection downlights using metal halide lamps.

LIGHTING DESIGN
Hiroyasu Shoji, IALD
Yumiko Tanaka, Associate IALD
LightDesign Inc

PHOTOGRAPHY
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Mr. R. Balasubramanian, Hony. Secretary - ISLE Chennai State Centre (Mobile: +91-9840055645) E-mail: balu@Lii2011.in
Mr. S. Raghavan, Advisor - ISLE (Mobile: +91-9790974048) E-mail: sraghavan@Lii2011.in

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The Draft Standard has been sent to CIE National Committees for comments and sales to interested parties. It is still subject to changes and may not yet be referred to as a CIE Standard. When approved by the CIE NCs, it will be published as a CIE Standard and later on as a joint ISO/CIE Standard.

Price of this Draft Standard: € 56,- (Members of the National Committees of the CIE get 50% discount).

FORTHCOMING EVENTS

2nd CIE Expert Symposium on Appearance - When appearance meets lighting

September 8 - 10, 2010, Gent ,Belgium

Visual assessment of the appearance of objects and materials is a very complicated process and four research areas have been suggested: colour, gloss, texture and translucency. Much work has been done to quantify colour appearance, but there is still much to understand about the perception of gloss, while the elaboration of visual correlates of texture and translucency is in its infancy.

Lighting designers pay increasing attention to lighting comfort, which must at least partly be determined by the spatial distribution of the colour and brightness attributed for example, to walls, ceiling, and furniture.

Appearance scientists, especially those interested in colour and gloss, could offer input to those attempting to describe lighting comfort and it is clear that both research fields could benefit from a multi-disciplinary approach.

This CIE Expert Symposium organised by TC 1-72 'Measurement of Appearance Network' aims to create a symbiosis between both research fields, bridging the gap between colour, colour harmony and colour emotion; between gloss, lightness, brightness and glare; and between CIE Division 1 Vision and Colour and CIE Division 3 Interior Environment and Lighting Design.

The program promises to bring together some eminent scientist through a series of exciting sessions:

- Keynote speaker: Dr. M. Billger, Chalmers University of Technology (Sweden)
- 'Colour Appearance' session chaired by Dr. R. Luo (UK)
- 'Appearance attributes: gloss, texture and translucency' session chaired by Dr. F. Viénot (France)
- 'Luminance and Glare' session chaired by Dr. T. McGowan (USA)
- 'Luminance based Design' session chaired by Dr. Y. Nakamura (Japan)
- 'Lighting Comfort' session chaired by Dr. S. Fotios (UK)
- 'Measurement & Instrumentation' session chaired by Dr. M. Pointer (UK)

For further information contact:

Light & Lighting Laboratory
KaHo Sint-Lieven
Gebroeders Desmetstraat 1,
B-9000 Gent
Belgium
Tel: +32 9 265 87 13
Fax: +32 9 225 62 69
Email: lichttechnologie@kahosl.be

IES Street and Area Lighting Conference

September 26-29, 2010, Huntington Beach CA

This is the only conference in North America that specifically targets the needs and concerns of the street and area lighting industry and is the premier forum for industry professionals to openly exchange information on outdoor lighting issues and promote excellence in this field. It is dedicated to the continuing education of a wide range of outdoor lighting professionals including designers, engineers, managers, directors and planners from municipalities, cooperatives, and utilities, consultant firms and urban planners with responsibilities in outdoor lighting.

Three days of educational sessions and exhibits will enable attendees to gain a hold on current outdoor lighting practices. From lighting novice to experienced veteran, the conference offers basic, intermediate and computer aided outdoor lighting courses. The conference program covers a wide range of topics such as emerging technologies, lighting and health, relamping, maintenance and design, and project case studies from some of the largest utilities in the country. Speakers are prominent industry leaders providing cutting-edge information you can only get at this conference, exclusively focused on outdoor lighting.

For further information contact:

Valerie Landers Vlanders@ies.org
Phyllis Werts pwerts@ies.org

OTHER NEWS

Report on 12th Symposium on Science & Technology of Light Sources (LS-12) & White LED- 3

The symposium was held at Technical University, Eindhoven (TU/e), The Netherlands from 11 – 16 July 2010. It was attended by around 330 delegates from 30 countries. This was the first time that the two conferences (Light Sources and White LED) were held together.

There were 2 key note Lectures, 23 Invited papers, 26 Landmark papers and 184 posters. The very first key note

lecture, by Wim Van den Hock, The Netherlands gave a good review of the History of Incandescent lamps. The incandescent lamp is one of the longest existing electrotechnical products, which is currently facing a ban in many countries. Its history comprises of about 200 years, starting from the experiments of Sir Humphrey Davy in 1802 and followed by the historic milestone of the Carbon filament lamp by Edison in 1879. Thereafter, there were series of inventions and development which gave rise to the tungsten filament lamp around 1912.This was due to the achievements in the tungsten field by Coolidge and the Physical insights of Langmuir. The next milestone in this field came much later in 1959 in the form of the halogen lamp.

The second key note lecture by Dr. Dave Halliday of the Light-up the World Foundation, (Dr, Halliday, from University of Calgary, Canada, is a remarkable man, currently settled in Hyderabad) was very interesting. People in developing countries can really benefit from the LED based light sources developed by him. At the end of the symposium the Foundation was presented with a grant of € 500 for the work he is carrying out for the people who have not seen electric light in their lives.

In fluorescent lamps the main emphasis still is to reduce the content of mercury in the lamp as much as possible. As per RoHS the allowed content is 5 mg per lamp. However, the current trend is to put it as low as 1.7 mg mercury per lamp.

The progress on LEDs is remarkable and has reached a status of 117 Lumens per watt mark for white LED s and is increasing day by day. The aim is to touch 200 LPW which was indicated in LS-11 but now seems very feasible. It is very clear by now that this is the future light source.

Better methods of understanding of total luminous flux emitted by LEDs are being thought of.

In Metal Halide lamps the focus is on using ceramic arc tubes which inherently have a capability of achieving higher efficacy. There are some studies on use of elliptical Ceramic Metal Halide lamps. There are also efforts to produce these lamps without mercury and using materials such as Xe, Zn. Remarkable results have been achieved in MH lamps with unsaturated Metal Halides.

In Lamp components there were papers on various components such as getter material by SAES Getter, electrodes for HID lamps, emitter materials, emission characteristics of these emitter materials, phosphor materials for LEDs

OLEDs (Organic Light Emitting Diodes) also have shown promise of attaining good luminous efficiency. The only issue in this case is how to produce OLEDs competitively. The manufacturing cost of $20 / m^2 is being aimed at. A Roll to Roll fabrication of OLEDs has a great promise for a low cost OLED source for lighting. These OLEDs can be with 50-60 LPW efficacy.

Besides technical sessions there was an Organ concert at the University hall. There was an informal get together on the 12th evening and a formal dinner on the 14th.

The trend of topics of the papers in the past three LS conferences which I have attended is as follows:

Subject	No of Papers		
	LS-10 (2004) Toulouse	LS-11 (2007) Shanghai	LS-12 (2010) Eindhoven
Miscelleneous	105	61	65
Components / Materials	31	27	8
Metal Halide	30	25	19
Electrodeless lamps	23	16	5
Fluorescent	18	26	10
Mercury free lamps	13	9	9
Mecury vapour	12	5	1
LED	10	25	58
OLED	10	5	11
Measurements	5	18	5
Halogen	4	6	3
Sodium Vapour	4	2	0
Molecular discharges	3	0	2
UHP	2	6	0
Flashlamps	0	5	1
Incandescent	1	1	2
UV	0	2	12
Low pressure	0	7	4
Electronics	0	7	9
HID	0	0	12
TOTAL	**271**	**253**	**236**

We were 3 delegates from India, Dr.Avinash Kulkarni, Dr. Mandar Sahasrabudhe (Arklite) and myself (Litex). Besides us, there were four other Indian delegates from Havells Sylvania, Belgium and one from Philips, Holland. Most of the other delegates were from: EU -164, USA - 44, Japan – 39, China-20.

The next LS i.e. LS-13 + WLED 4 will be in Charlotte, North Carolina, USA in 2012. This symposium will now be held every two years, as against once in three years in the past. I appeal to all those interested in the Science and Technology of Light Sources to make it a point to attend such future events. It is well worth it. Attending the LS conferences has always been a rewarding experience for me.

Dr. S. V. Rajarshi
Sr. Manager – Business Development
Litex Electricals Pvt. Ltd.

WEBWATCH

Gateway's LED-based SSL Installation Saves 75% Energy

The US Department of Labor has installed LED-based solid-state lighting in a parking garage, and expects 75% energy savings and better light.

The SSL installation took place in May 2010, and preliminary tests show an energy savings of more than 75% relative to the prior garage lighting system. The savings come both from the LED lighting and motion sensors that can automatically dim or extinguish the lights when no cars are present. The DOE also proclaimed that the new system offers "greatly improved illumination quality - more uniform light and a heightened ability to discern colours."

Though installing 19 LED light fixtures at the Frances Perkins Building may seem small, the 75 percent electricity savings is not, and serves as precisely the kind of energy leadership the President is requiring of all Federal agencies," said Charlotte Hayes, Deputy Assistant Secretary for Policy in the Office of Administration and Management.

LINKS :

http://www1.eere.energy.gov/buildings/ssl/gatewaydemos.html

http://www1.eere.energy.gov/buildings/ssl/gatewaydemos_results.html

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Global Light Savers Programme in Kolkata

Over 270 outdoor LED luminaires will be installed in Kolkata, India, in order to evaulate their performance as part of the global Light Savers program.

Under the mentorship of The Climate Group's Global Light Savers initiative, the Kolkata Municipal Corporation (KMC) in Kolkata (formerly Calcutta), India, has unveiled an extensive LED pilot project. This will involve an initial installation of 273 LED luminaires.

The project will evaluate the performance of LED luminaries with respect to illuminance, uniformity, colour temperature, durability, longevity, and colour shift over 2-3 years.

The project involves 123 nos. 130W RoadStar LED luminaires to replace 250W HPS luminaires, and 150 Road Star 180W luminaires to replace 400W HPS luminaires. The LED replacement luminaires were demonstrated through advance modeling to meet Indian Roadway Lighting Standard IS 1994.

The LED luminaires will be installed on 8 different streets in Kolkata, with road widths between 20 and 25 feet, a 25- to 30-meter spacing between poles, and a mounting height of 7 meters.

In launching the pilot, Kolkata is teaming up with 10 other cities around the world including New York, London, Toronto, and Tianjin, China, which are all participating in the first phase of The Climate Group's LightSavers program.

LINKS :

http://www.theclimategroup.org/programs/LightSavers/

Smart Lighting System Reduces Energy Use by Over 50 Percent

The Sony Supply Chain Solutions Singapore (SSCSS) warehouse is using energy efficient, individually dimmable lights to cut energy use by over 50 percent while increasing light quality, providing real-time insight into the health of each fixture, energy consumption, and reducing maintenance costs.

It is the first installation in Singapore of a high bay lighting system featuring control networking technology to provide dimmable, two-way communicating lights.

High bay lighting systems are used in buildings featuring high ceilings such as warehouses, large retail stores, grocery stores, convention centers, factories, athletic facilities, auditoriums, and airport hangars.

Sony replaced the existing 210, 400W metal halide lighting fixtures with only 147, 400W metal halide fixtures with acrylic reflectors. Each fixture includes power line based networking technology to enable remote control and dimming at both the individual fixture and system level. A segment controller provides system level functionality such as scheduling, and can act as a conduit to other building systems and software applications.

The result is a significant improvement in light levels, enabling the customer to not only reduce the number of fixtures, but also dim the lights and reduce overall energy use by over 50 percent, while still providing same light levels as before.

Link:

http://www.echelon.com/company/press/2010/sony_scss.htm

Out Door Lighting News : LED Street Lights

LINKS :

here :

Easthampton, Massachusetts, awarded $174,985 for LED streetlights

http://www.newstreetlights.com/index_files/LED_street_light_news_Easthampton_Massachusetts_awarded_175K_for_LED_streetlights_204.htm

here

Gothenburg has been awarded a $206,080 grant to buy energy-efficient street lighting.

http://www.gothenburgtimes.com/index.php?option=com_content&view=article&id=1478:let-there-be-light&catid=1:local&Itemid=2

and here

Berwick, Nova Scotia, Canada, receives C$101,573 for LED streetlights

http://www.newstreetlights.com/index_files/LED_street_light_news_Berwick_Nova_Scotia_Canada_receives_C102K_for_LED_streetlights_199.htm

but NOT here :

Philadelphia officials argue over updated LED streetlights

http://www.philly.com/inquirer/front_page/20100622_Philadelphia_officials_argue_over_updated_LED_streetlights.html

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Lighting the Way - Developing OLEDs for the General Illumination Market

The lighting industry is in transition. The formerly ubiquitous incandescent bulb has already been banned in Europe and will be phased out in the US beginning in 2012, all part of an effort to reduce greenhouse gas emissions by promoting energy efficiency. That leaves a significant portion of the $100 billion global lighting market - more than $20 billion of which is represented by lamps - up for grabs.

Compact fluorescent lamps are often considered the obvious successor to incandescent bulbs, since they use as much as 80 percent less energy and last considerably longer, but they have drawbacks as well. They are more expensive individually and give off a harsher light, dramatically changing the aesthetics of an interior. At the same time, consumer advocates have noted that many people - those who suffer from epilepsy and anxiety, for example - are especially sensitive to this light.

Among the other alternatives, organic LEDs (OLEDs) have lately created a stir, in large part because of improvements in power efficiency.

LINK :

http://www.photonics.com_Article.aspx?AID=41263&refer=SpectraNewsletter&utm_source=SpectraNewsletter_2010_3_12&utm_medium=email&utm_campaign=SpectraNewsletter

Impact of Outdoor Lighting on Human Biological Cycles

Research reveals that outdoor lighting has little if any impact on human biological cycles in the face of worries of some advocacy groups about bluish short-wavelength light.

The Alliance for Solid-State Illumination and Technologies (ASSIST) has published a technical paper developed by the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute (RPI) that examines what if any effect outdoor lighting has on human circadian cycles. Advocacy groups such as the International Dark-Sky Association (IDA) have claimed that blue-spectrum wavelengths found in sources such as LED-based solid-state lighting (SSL) can disrupt circadian rhythms but the new research largely refutes that claim.

Last year, the IDA issued a statement proclaiming that bluish light can harm vision as well as impacting biological cycles. To test such a possibility, ASSIST studied four typical outdoor light sources including two cool-white LED luminaires.

The tests included an evaluation in a controlled laboratory environment as a reference, and in two typical streetlight scenarios that replicate typical distances from the source and viewing angles. The paper concludes that three of the four sources "would not meaningfully stimulate the human circadian system after one hour of exposure." A 6900K LED source that was tested could have a slight impact.

The tests relied on a model of human circadian phototransduction that was previously published by the LRC. The tests simulate a one-hour exposure to light relative to a 20-year-old person. The researchers calculated melatonin suppression that would occur based on the exposure with each source. Melatonin is a commonly accepted biological marker used in circadian rhythm study.

The study predicts that the 6900K source will provide 3-10% melatonin suppression. The suppression falls below a 15% threshold that might be more problematic. LRC director Mark Rea said, "Although stimulation of the circadian system is not necessarily synonymous with health risk, it is essential to determine if and to what degree light sources used outdoors at night might stimulate the circadian system. This study is a good start toward quantitatively understanding if outdoor lighting poses a concern."

LINK :

http://www.lrc.rpi.edu/programs/solidstate/assist/techpaper-outdoorcircadian.asp

http://www.lrc.rpi.edu/programs/solidstate/assist/pdf/ASSIST-TechnicalPaper-OutdoorLightingCircadianAnalysis.pdf

End of Darkness for Students in Dispur

Dispur to distribute lamps among 1 lakh beneficiaries to help tide over power crisis

End of darkness - Dispur is going to rural Assam with the "light" of education, quite literally.

The government has decided to distribute solar lamps among 100,000 students within this year, waking up to the fact that hundreds of brilliant students do not have electricity in their homes.

An Assam government official told The Telegraph that the scheme was taken up following reports how lack of electricity affected studies, particularly in the rural belts.

"There were instances when the toppers in matriculation, Higher Secondary and university examinations were affected by power problems. The solar lamp scheme will cost Rs 12 crore initially and help students study at night," the official said.

A solar lamp is a portable light fixture composed of a LED lamp, a photovoltaic solar panel, and one or more rechargeable batteries. Batteries are charged using solar radiation.

Link :

http://www.telegraphindia.com/1100721/jsp/northeast/story_12705665.jsp

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Compact Fluorescent Lamps Save Energy but Need to be Disposed of Properly

For years, consumers have been urged to switch to CFLs, or compact fluorescent lights, which use about one-quarter of the electricity of incandescent bulbs. But unknown to many, CFLs come with a health risk if they're broken: They contain small amounts of mercury, a neurotoxin that can be particularly harmful to pregnant women and children.

LINK :

http://www.mercurynews.com/news/ci_15499538?source=rss&nclick_check=1

IEC Collaboration Tools for CIE

How can IEC experts from all over the world gather and work together on technical standards and related projects? This is what Collaboration Tools platform is all about - connecting people and offering an online tool for teamwork.

The IEC has customized a new portal on Collaboration Tools for CIE. It is the first time a partner organization has been given the opportunity to use the IEC's IT tools for carrying out online work.

LINK :

http://www.iec.ch/online_news/etech/arch_2010/etech_0610/world_4.htm?mlref=etech

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Supermarket lighting enhances nutrient level of fresh spinach

Far from being a food spoiler, the fluorescent lighting in supermarkets actually can boost the nutritional value of fresh spinach, scientists are reporting. The finding could lead to improved ways of preserving and enhancing the nutritional value of spinach and perhaps other veggies, they suggest in a study in ACS' Journal of Agricultural and Food Chemistry.

Gene Lester, Donald J. Makus, and D. Mark Hodges note that fresh spinach is a nutritional powerhouse, packed with vitamin C, vitamin E, folate (a B vitamin), and healthful carotenoid antioxidants. Supermarkets often display fresh spinach in clear plastic containers at around 39 degrees Fahrenheit in showcases that may be exposed to fluorescent light 24 hours a day. Lester, Makus, and Hodges wondered how this continuous light exposure might affect spinach's nutritional value.

The scientists exposed fresh spinach leaves to continuous light or darkness during simulated retail storage conditions for three to nine days. Spinach stored in light for as little as three days had significantly higher levels of vitamins C, K, E, and folate. They also had higher levels of the healthful carotenoids (plant pigments) lutein and zeaxanthin. During continuous light exposure after nine days, levels of folate increased between 84 and 100 percent, for instance.

LINKS :

http://www.physorg.com/news186838048.html

Conserving Power, One Bulb at a Time

India's first thrust with energy efficiency through Earth Hour in 2009, when Delhi saved 600 MW - 14 per cent of its daily electricity requirement - in an hour, is set to get bigger.

The country's first two pilot projects on saving household energy - the biggest cause of climate change - by replacing incandescent lamps with compact fluorescent lamps (CFLs) in Haryana's Yamunanagar and Vishakapatnam in Andhra Pradesh in the last six months have been a success so far.

Records indicate monthly household energy bill in the two towns reduced by 10-15 per cent.

"The pilots have worked well," said Ajay Mathur, Director-General of Bureau of Energy Efficiency (BEE), a

technocrat mandated with implementing government's energy efficiency policies. "A template is now ready for replicating the scheme all over the country."

LINK :

http://www.hindustantimes.com/Conserving-power-one-bulb-at-a-time/H1-Article1-517580.aspx

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LED Boom Based on Lighting Expected to Lead to "Third Cycle" in the Market

The light-emitting diode (LED) market has gone through two cycles of major growth, but an even bigger "third cycle" based on super-efficient lighting looms ahead, perhaps around 2013, predicted speakers at a SEMI breakfast at Teradyne near Boston on March 10.

Jonathon (Jed) Dorsheimer, senior equity analyst for Canaccord Adams, discussed the three growth cycles for LEDs in a talk on the marketplace. High cost and performance issues will limit LED lighting to small specialty niches, he said, until technology and cost reduction make it competitive to alternatives such as fluorescents and halogen lamps. The boom should come about 2013, he predicted, when trigger points and value propositions should be reached in major lighting markets. Even then, as detailed in his firm's in-depth study to be completed about mid-year, he assumes that external stimulus such as government subsidies and incentives for greener technology would account for 30% of the economic driver sparking a take-off in broad lighting markets.

LINK :

http://www.electroiq.com/index/display/semiconductors-article-display/8931943384/articles/solid-state-technology/semiconductors/industry-news/business-news/2010/march/led-boom_based_on.html

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Shedding New Light on the Fluorescent Versus LED Debate

When it comes to selecting light fittings for use in hazardous areas, there is still some confusion over whether users should opt for the latest LED lamps or for the more conventional fluorescent lights. A recent independent report published by the US Department of Energy sheds some interesting light on the debate.

For many companies, replacing traditional fluorescent light fittings with LED lamps is now a very real possibility. However, when it comes to replacing lamps installed in hazardous gas or dust areas, some of the 'facts' about LED lighting can be misleading, particularly in terms of a lamp's performance, reliability and the availability of replacements or spare parts. End users must therefore be extremely cautious when considering the replacement of conventional fluorescent lamps, particularly in hazardous zones.

A report published by the US Department of Energy (DOE) in October 2009 stated that when it came to 4' linear replacement lamps, solid-state lighting products "were still not competitive with T8 fluorescent lamps".

The report is based on Round 9 of the DOE's Solid State Lighting CALiPER (Commercially Available LED Product Evaluation and Reporting) program, conducted from June 2009 to September 2009. In Round 9, 30 products that represented a range of product types and technologies were tested using absolute photometry. All SSL products were tested follow-ing the IESNA LM-79-08 testing method. Testing also included measurements of surface temperatures, which were taken at the hottest accessible spots on the luminaire.

Link :

http://www.pandct.com/media/shownews.asp?ID=25734

Barcelona Uses Wireless LED Streetlights that Cut Energy Costs by 33%

If Barcelona, Spain wasn't enough of a dreamy destination, it's now going green, too, thanks to new wirelessly-controlled LED street lamps that use timers and motion detectors to save energy.

Spanish energy firm Endesa is responsible for the installation, which costs more than traditional lighting up front, but offers equal value over the lights' lifespan.

And, of course, the best value of all: Barcelona expects its municipal power bill to decline by a third thanks to those timers.

LINKS :

http://www.smartplanet.com/business/blog/smart-takes/barcelona-uses-wireless-led-streetlights-that-cut-energy-costs-by-33/5643/

http://www.endesa.es/

http://www.youtube.com/watch?v=52YKJ31pde0

MEMBERSHIP APPLICATIONS APPROVED BY GOVERNING BODY

New Members Admitted during April, May and June 2010

M. No	Name & Addresses	Grade	Centre
F.0680(L)	Anoop Aggarwal 52/172, V.T. Road Mansarovar Jaipur	Fellow (Life)	Rajasthan
F.0681(L)	Ajay Goel Goldwyn Limited 15 Noida Special Economic Zone Noida 201 305	Fellow (Life)	Delhi

F.0682(L)	Mahaveer Prasad Meena C-6, Triveni Awas Colony Bajrang Nagar, Police Lines Kota	Fellow (Life)	Rajasthan
F.0683(L)	Avadhbihari Makvana 289, Subhash Nagar Kota Rajasthan	Fellow (Life)	Rajasthan
F.0684(L)	Ashok Kumar Sharma 7-D-20, Mahaveer Nagar Extension Teen Batti, Subhash Circle Kota 324 009	Fellow (Life)	Rajasthan
F.0685(L)	Dinesh Kumar Yadav C-14, Staff Colony Rajasthan Technical University Kota	Fellow (Life)	Rajasthan
F.0687(L)	Ghouse Ahmed 19, 4th Cross Wilson Garden Bangalore 560 027	Fellow (Life)	Karnataka
M.1535(L)	Rajendra Kumar Khatri 17E - 118 Chopasani Housing Board Jodhpur Rajasthan 342 008	Member (Life)	Rajasthan
M.1536(L)	S.S.S.V. Gopala Raju Dept. of Civil Engg. MVGR College of Engineering Chintalavalasa, Vizianagram Andhra Pradesh 535 005	Member (Life)	Chennai
M.1537(L)	Dheeraj Kumar Palwalia Dept. of Electrical Engg. University College of Engg. Rajasthan Technical University Kota 324 010	Member (Life)	Rajasthan
M.1538(L)	Manoj Gupta B-77, Subhash Nagar Jaipur 302 016	Member (Life)	Rajasthan
M.1539(L)	Dinesh Kumar Yadav 38, Usha Vihahar Near Triveni Nagar Gopal Pura Bypass Jaipur 302 018	Member (Life)	Rajasthan
M.1540(L)	M. Vijay Kumar Canara Lighting Industries Ltd. Mulky Kinnigoli Road Punaroor Mangalore 574 179	Member (Life)	Karnataka
M.1541(L)	K. Mohan Rao C/o K.S. Kubamrajan Kaikuja Post Jodumarga DK Bantwal Tal 574 219	Member (Life)	Karnataka
M.1542(L)	Sheela Shah Flat No. 605, Palm Block SJR Park, Vista Havalur Road Ambalipura Bangalore 560 102	Member (Life)	Karnataka
M.1543(L)	Praveen Thampi The Ministry of Light Suite #34-35, Shubada Building Sir Pochkanwala Road Worli, Mumbai 400 300	Member (Life)	Mumbai
A.1035(L)	D. Radha Krishna C/o Sri D. Sesha Char No. 672, 4th Cross Road Mahalakshmi Layout Bangalore 560 086	Associate (Life)	Karnataka
A.1036(L)	Pankaj Mayaramka 520, Nemi Sagar Colony Vaishali Nagar Jaipur	Associate (Life)	Rajasthan
A.1037(L)	Aniruddh K. Joshi 117/312 Agarwal Farms Mansarovar Jaipur	Associate (Life)	Rajasthan
A.1038(L)	Tarun Tiwari Ginus Electricals A-41, Jai Ambey Nagar Civil Lines Jaipur 302 001	Associate (Life)	Rajasthan
A.1039(L)	K. Prashanth Suprabha Electricals No. 99, Near Rajashakar Tent Brindavan Layout Chikkal Sandra Post Padmanabha Nagar Bangalore 560 061	Associate (Life)	Karnataka
A.1040(L)	Girish Shenoy Canara Lighting Industries Ltd. Mulky Kinnigoli Road, Punaroor Mangalore	Associate (Life)	Karnataka
S.0371	Anumeha Gupta 3-A-53 Mahaveer Nagar Extn. Kota	Student	Rajasthan
S.0372	Jitender Kumar Dhaka C/o Sh. Shishram Dhaka V.P.O. Ranasar, Tehsil Nawalgarh District Jhunjhunu Rajasthan	Student	Rajasthan
S.0373	Nitish Nehra Vill + Post Chanana Teh. Chirawa, Dist. Jhunjhunu Rajasthan 333 026	Student	Rajasthan
S.0374	Pritam Sharma A-40, Sain Colony Railway Station Jaipur	Student	Rajasthan
S.0375	Pallav Rungta Phari Mohalla, Ward No. 7 Bagar, Dist. Jhunjhunu Rajasthan	Student	Rajasthan
S.0376	Nitin Sharma Shukla Colony, Khandar Sawai Madhopur Rajasthan	Student	Rajasthan
S.0377	Pooja Kumari At - Mirpur, P.O. Jandaha Dist. Vaishali Bihar 844 505	Student	Rajasthan
S.0378	Prakhar Bhargava 413, Mahaveer Nagar Tonk Road Jaipur	Student	Rajasthan
S.0379	Nilesh Rawal Near Somnath Tent House Sirohi Road, Pindwara Sirohi Rajasthan	Student	Rajasthan
S.0380	Neha Verma Near New Bus Stand Aklera, Jhalawar Rajasthan	Student	Rajasthan

S.0381	Moni Mangal M/s Mangal Oil Industries Thana Road, Kheragarh Agra Uttar Pradesh	Student	Rajasthan
S.0382	Rohisha Pandey 301, Vasundhara Colony Tonk Road Jaipur	Student	Rajasthan
S.0383	Rohan Katuva F - 16, Major Shaitan Singh Colony Shastri Nagar Jaipur	Student	Rajasthan
S.0384	Anita Poonia V.P.O. Janav Khar Teh. Rajgarh, Dist. Churu Rajasthan	Student	Rajasthan
S.0385	Gourab Banerjee Guruskhar Boys Hostel ISI, RIICO Institutional Area Sitapur Jaipur	Student	Rajasthan
S.0386	Priyanka Jourwal A - 47, Arjun Nagar South Tonk Phatak Jaipur	Student	Rajasthan
S.0387	Rishikesh Kumar C/o BK Thakur, B. Polytechnic, Govt. Polytechnic Dhanbad Jharkhand	Student	Rajasthan
S.0388	Gaurav Sharma 33/441 Pratapnagar, Sector 3 Jaipur	Student	Rajasthan
S.0389	Ujjwal Agrawal D-482, Malviya Nagar Jaipur 302 017	Student	Rajasthan
S.0390	Shivam Gahlot ISI - 2&6 RIICO Institutional Area Goner Road Jaipur	Student	Rajasthan
S.0391	Anshul Sharma C-34, Haridas Ji Ki Magri Udaipur Rajasthan	Student	Rajasthan
S.0392	Ankur Gupta C/o Kamal Kishore Gupta Ward No. 23, Sade Ka Bas Shahpura Jaipur	Student	Rajasthan
S.0393	Mohammed Shadab Parihar Near Zinat Manzil, A.G. Road Fatehpur - Shekhawati Sikar Rajasthan	Student	Rajasthan
S.0394	Vipul Kumar Vill. Jaypal Bigha P.O.War Dist. Aurangabad Bihar	Student	Rajasthan
S.0395	Nitin Pritwani H.No. 62, Pratap Nagar Chittorgarh Rajasthan	Student	Rajastha
S.0396	Kuldeep Chaturvedi 337-A, Taranagar - A Jhotwara Khirani Phatak Road Jaipur	Student	Rajasthan
S.0397	Pradeep Kumar Rajput A/53, Navrang Society Near TVS Showroom Ankleshwar, Gujarat	Student	Rajasthan
S.0398	Sachin Kumar Garg D-70 Mohan Nagar Near SDM Court Hindone City	Student	Rajasthan
S.0399	Vikrant Swami Plot No. 29, Shiva Nagar 4-C Macheda Jaipur	Student	Rajasthan
S.0400	Robin Keshri Kumar Vill. + P.O. + P.S. Mohaniya Dist. Bhabua (Kaimur) Bihar	Student	Rajasthan
S.0401	Abhijeet Aryan Vill. Jehanabad Dist. Jehanabad Bihar 804 408	Student	Rajasthan
S.0402	Akshay Kumar Gupta Shyam Nagar Behind Bohra Garden, Lalsot Dause	Student	Rajasthan
S.0403	Gaurav Kumar Dusad Dusad Bhawan Behind Hari Oil Mill Maruti Colony, Dausad Rajasthan	Student	Rajasthan
S.0404	Juhi Kothari C/o N.K. Kothari Neema Street, Sagwara Dist. Dungarpur	Student	Rajasthan
S.0405	Dhularam Gurjar V.P.O. Jainpur Was Teh. Beror, Dist. Alwar Rajasthan	Student	Rajasthan
S.0406	Amit Yadav Behind Shakti Tourist Complex Ward No. 19, Behror (Alwar) Rajasthan	Student	Rajasthan
S.0407	Gajanand Sharma Vill. Heerakabas, Post Bhutora Via Govindgarh, Teh. Chomu Dist. Jaipur Rajasthan	Student	Rajasthan
S.0408	Ashok Kumar Saini Mishrawali Dhani Post Kanaka Ki Wali Dhani Vill. Nawalgarh, Dist. Jhunjhunu Rajasthan	Student	Rajasthan
S.0409	Kiran Sihag C/o Chander Shekhar Sihag Ward No. 19, Chungi No. 6 Hanumangarh Rajasthan	Student	Rajasthan
S.0410	Kanta Das Vasant Nagar, Teja Tola Katihar Bihar	Student	Rajasthan
S.0411	Gaurav Sharma 12/152, Malviya Nagar Jaipur	Student	Rajasthan
S.0412	Ashutosh Kumar C/o Dr. Satyendra Kumar Flat No. 26, Pocket - 2 Sector - 11, Dwarka New Delhi 110 075	Student	Rajasthan
S.0413	Indra Kumar Sharma A-269, Mahesh Nagar Saini Colony Jaipur	Student	Rajasthan

S.0414	Dinesh Choudhary C/o Suwalal Choudhary V.P.O. Lalya Ka Bas (Mahapura) Via Bhankrota, Dist. Jaipur Rajasthan	Student	Rajasthan
S.0415	Md Tarique Shamim Quazi Wali Check Tatarpur Road, Bhagalpur Bihar - 812 002	Student	Rajasthan
S.0416	Jayesh Mittal Subhash Nagar, Street No. 3 Sheoganj (Sirohi) Rajasthan	Student	Rajasthan
S.0417	Rizwanullah Rizwi AT/Post Khary Banka Dist. Madhubani Bihar 847 121	Student	Rajasthan
S.0418	Kamaldeep Kumawat PN-8B, Hanuman Nagar - II Kalwar Road, Jhotwara Jaipur	Student	Rajasthan
S.0419	Arpita Mathur 91/151, Patel Marg Mansarovar Jaipur	Student	Rajasthan
S.0420	Pooja Daga 42, Bhagakot Kalyan Colony, Banswara Rajasthan	Student	Rajasthan
S.0421	Pushpendra Singhal Shukla Colony Khandar Sawai Madhopur Rajasthan	Student	Rajasthan
S.0422	Suman Rajak B - 48, Sadul Ganj Bikaner Rajasthan 334 001	Student	Rajasthan
S.0423	Sunita Pilaniya 14, Bharav Nagar Heerapura Jaipur	Student	Rajasthan
S.0424	Ashish Agarwal V.P. Dahmi Kalan, Via Bagru, Dist. Jaipur Teh. Sanganer Rajasthan	Student	Rajasthan
S.0425	Rahul Sharma Vil. Beewari Teh. Viratnagar, Dist. Jaipur Rajasthan	Student	Rajasthan
S.0426	Arpit Vashishtha 72/257, Vinayak Path Near Patel Marg, Shipra Path Mansarovar Jaipur Rajasthan	Student	Rajasthan
S.0427	Asmita Singh RIICO Industrial Area Poornima College of Engineering Gayatri Girls Hostel Sitapura, Jaipur Rajasthan	Student	Rajasthan
S.0428	Alka Sachdeva 747, Sindhi Colony Raja Park Jaipur	Student	Rajasthan
S.0429	Abhishek Sharma RIICO Industrial Area Poornima College of Engg. & Tech. Gurushikar Boys Hostel Jaipur	Student	Rajasthan
S.0430	Akriti Kumawat P. No. 3, Suraj Nagar Second Near Dadavadi, Sanganer Jaipur	Student	Rajasthan
S.0431	Deepali Raisinghani 132, Santosh Sagar Colony Brahmpuri Road Jaipur	Student	Rajasthan
S.0432	Pranav Khandelwal Opp. Bhati Mansion Bajaj Road, Sikar Rajasthan	Student	Rajasthan
S.0433	Syed Khizar Ahmed 3-GA-33 Shastri Nagar Housing Board Jaipur	Student	Rajasthan
S.0434	Rajkumar Sharma Behind Arun Motors Somnath Nagar, Ganeshpura Road Dausa Rajasthan	Student	Rajasthan
S.0435	Gaurav Jain 964, Shanti Nagar Gopalpura Bypass Jaipur	Student	Rajasthan
S.0436	Vijendra Shekhawat Plot No. 134, Chand Bihari Nagar Khatipura, Jaipur Rajasthan 302 012	Student	Rajasthan
S.0437	Rajendra Singh ISO-6, Institutional Area Goner Road, Sitapur Jaipur Rajasthan	Student	Rajasthan
S.0438	Divyanshu Singh Rao 2/286 New Vidhyadhar Nagar Jaipur	Student	Rajasthan
S.0439	Digvijai Chandra B - 130 Sethi Colony Jaipur 302 004	Student	Rajasthan
S.0440	Mahendra Kumar Yadav C/o Ashok Verma A 147 Arjun Nagar, Durgapura Jaipur	Student	Rajasthan
S.0441	Mukesh Kumar Jakhar Vil. Habukabash, Post Kishanpura Via Badhal, Dist. Jaipur Rajasthan	Student	Rajasthan
S.0442	Mandeep Singh V.P.O. Amargarh Teh. Sadul Shahar Dist. Sri Ganga Nagar Rajasthan	Student	Rajasthan
S.0443	Harshita Gaur 511, Shastri Nagar Deogarh Dist. Rajsamand Rajasthan	Student	Rajasthan
S.0444	Shimbhu Dayal Yadav P. No. 18, Jainagar Sikar Road No. 3, Murlipura Jaipur	Student	Rajasthan
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S.0449	Vinay Pandey 140, Sindhi Colony Rajapark, Jaipur Rajasthan	Student	Rajasthan
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S.0452	Rohit Utreja House No 487, Ward No 4 Gandhi Basti, Purani Abadi Sri Ganganagar	Student	Rajasthan
S.0453	Sunil Kumari Village Rayla, Via Pilani Dist. Jhunjhunu Rajasthan 333 031	Student	Rajasthan
S.0454	Prateek Gupta 449/22, Shiv Nagar Behariganj Ajmer Rajasthan	Student	Rajasthan
S.0455	Rohit Singh A-1/139 Janakpuri New Delhi	Student	Rajasthan
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S.0463	Karan Singh V.P.O. Pacheri Bari Dist. Jhunjhunu Rajasthan	Student	Rajasthan
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S.0492	Devendra Garg V.P.O. Dhanop, Teh. Shahpura Dist. Bhilwara Rajasthan	Student	Rajasthan
S.0493	Hiteshwar Singh Chouhan Opp. Irrigation Dept. Behind Post Office, Happy Home Gangapur, Dist. Bhilwara Rajasthan	Student	Rajasthan
S.0494	Neha Kumari C/o Ramesh Prasad Amba Product, Kund Mohalla Daltonganj, Palamau Jharkhand 822 101	Student	Rajasthan
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S.0496	Gurvita Rai C/o Mr. P.K. Rai, Type III 52, Kendranchal Colony, Sector K Aliganj Lucknow	Student	Rajasthan
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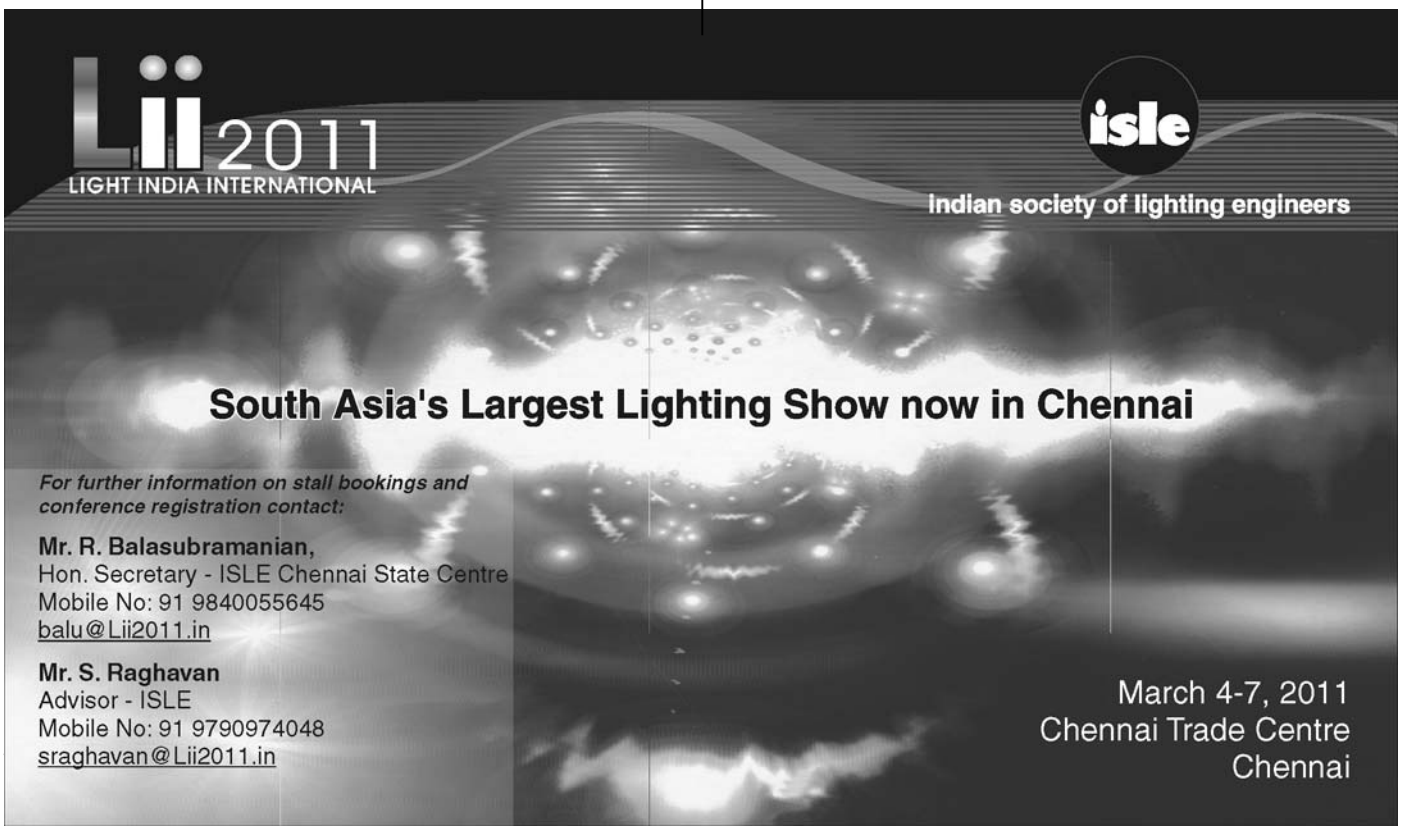

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