



LIGHT

the official

NEWSLETTER

of the **indian society of lighting engineers**

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FROM THE PRESIDENT'S DESK

With the advent of 2007, we begin the process for the changing of the guard at ISLE. The election process has begun and there will be a new team directing the Society in April.

This is a good time to look back and assess what we have done right and what we could have done better and to set our sights on new goals.

The present Governing Body can indeed look back with satisfaction on many counts. Lii2005 was a resounding success like the previous international conferences and exhibitions. The Karnataka State Centre is coordinating the EU Light India training programme. The Mumbai State Centre has conducted a number of meaningful programmes. The Calcutta State Centre under a new team has started an ambitious activity plan. The Pune Local Centre has been revived. The Delhi State Centre has extended its reach by organizing the setting up of a Local center at Jaipur. Chennai State Centre has a plan to do more programmes.

As a Society we have reached out to many sections with an interest in lighting. A large body of students have been drawn into the ISLE fold. Academic institutions are increasingly reaching out to ISLE for help in establishing lighting as part of the curriculum. Government and International agencies are involving ISLE in their programmes. The Ministry of Power and BEE have made ISLE an integral part of their deliberations on energy saving while BEE wants to jointly sponsor Energy Awards. The EU has partnered the Karnataka State Centre in carrying out an excellent training programme. The Ministry of Tourism is looking to ISLE for help in creatively enhancing tourist destinations with lighting. The USAID and Karnataka Government project to start a Lighting Competence Centre with ISLE involvement is already underway.

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In this perspective it is difficult to understand why ISLE members are not coming forward to take part in the technical work of the CIE. It is also disheartening to see that at the CIE Session in Beijing there will be only 3 papers from India. At the last Session in San Diego there was only one. The CIE TCs do not currently have active members from India. The new GB will have to understand why a Society that has established a definite credibility with such a variety of interest groups is unwilling to come forward to do the technical work intrinsic to the Society and remedy this situation.

I am personally grateful for all the cooperation I have received from members and in particular from the GB. I do believe that the new team will inherit a credible image and a history of achievement, but a lot more needs to be done to ensure our continued image as the only technical platform for lighting in India.

S. Venkataramani
President

EDITORIAL

In this issue you will find reports of activities from the different State and Local Centres including the EU Light India project, the third training programme which is taking place in Bangalore.

From Dr. Warren Julian's brief, the CIE Session promises to be very interesting and useful and I do hope that we will see a large ISLE contingent at Beijing. Remember to register early to take advantage of the discounted fees.

You will find an excellent article from the ILR on the subject of luminaires for daylight with the challenges posed by liquid design or blob architecture and the new possibilities for luminaires for daylight. There are also some very interesting inputs from Mr. Anool Mahidharia in the WebWatch column.

With a view to opening up discussion on the issue of continuing education, we had published letters from two members on this in the last issue of the newsletter. While the specific issues raised are being discussed in further correspondence between the two members involved, we give here the views of Mr. Howard Brandston, the lighting master, on this subject. You will also find Mr. Anil Valia's compilation of information on the continuing education programmes in the USA through the seminar accreditation system.

From time to time we have been asking members to keep us updated on any change in address. Please take the time to do this and in case you know of other members who have shifted please do inform us. And

while on this subject, we would like to inform you that the Delhi Secretariat office has recently shifted to Noida. All correspondence should be directed to ISLE c/o Thorn Lighting, A 88 Sector IV, Noida 301 201 (UP). Please see the box below for telephone and fax numbers.

Feedback is always welcome and I look forward to hearing from you.

H.S. Mamak
Editor

OBITUARY

Dr.-ING. RAINER RATTUNDE

We were shocked to learn the news of untimely demise of Dr. Rainer Rattunde in November 2006. Many lighting professionals in India and ISLE members knew Dr. Rattunde. He visited India a number of times from the 1980's including the CIE Session in 1995.

Dr. Rattunde was the co-owner of LMT Lichtmesstechnik GmbH in Berlin, Germany. After completing his engineering course he started LMT along with his friends to design and manufacture various meters and equipment specifically needed for the Photometric Laboratory. By the end of 1980s LMT Lightmeters and Goniophotometers were rated among the best by the users.

Dr. Rattunde was also close to Late Prof. Dr. - Ing. Juergen Krochmann, Professor and Head, Illumination Engineering Dept., Technical University, Berlin. And like Prof. Krochmann and Late Dr. Heinz Terstiege, Past Secretary of CIE and Past President of German National Committee - also from Berlin, Dr. Rattunde was very active in CIE, particularly Division - 2.

Mumbai had a wonderful link with Berlin, as all these three gentlemen came to Mumbai many times, delivered lectures and interacted with the lighting community. Some of us reciprocated these visits. We hope the link will continue in future.

May Rainer Rattunde's soul rest in eternal peace.

Pranab K. Bandyopadhyay

NEW MAILING ADDRESS

Please note that the Delhi Secretariat has shifted to

*A-88, 2nd Floor, Sector IV
NOIDA 201 301*

Tel: 0120 4242783/4242784

Fax: 0120 4242780

E-mail: isledel@vsnl.com; www.isleind.org

EGM

December 22, 2007, New Delhi

An Extraordinary General Meeting was held on 22 December 2006 at the India Habitat Centre in New Delhi

In the month of May a notice was sent to members suggesting a change in the address of the Registered Office of the Society. The need for this change arose from the decision to sell the property where the Registered Office is presently located as it has not been in use now for some two years since the activities of the Society have been conducted from Delhi and Kolkata. This proposal had a majority support in the response from members.

The EGM adopted the resolution that the Registered Office of the Society be shifted to the following address:

C/o Philips Electronics India Ltd.
Technopolis Knowledge Park
Mahakali Caves Road
Chakala, Andheri (E)
Mumbai 400 093

AGM

December 22, 2007, New Delhi

The AGM for the year 2005-06 was held on December 22, 2006 at the India Habitat Centre in New Delhi.

The President in his address informed the gathering that the AGM for the year 2005-06 could not be held before July, 2006, due to non-finalization of the Statement of Accounts and non completion of the election for a new Governing Body. The President also informed the meeting that the Governing Body took a decision to amend the Bye-laws of ISLE incorporating a new method of formation of the Governing Body. The Amendment was circulated to all ISLE members. In view of an overall poor response, the proposal was withdrawn in spite of a majority support for the same. Thus a new Governing Body could not be formed in time. The President suggested that the election process as per the existing Bye-laws should start immediately and the process completed before end March, 2007, so that the charge could be handed over to the new Governing Body in the next AGM, which should be held in or immediately after April, 2007, even if the full accounts up to March, 2007 could not be finalized.

To complete all these actions, it became necessary to extend the tenure of the present Governing Body up to the next AGM (21st AGM) to be held in or immediately after April, 2007.

The AGM passed an appropriate resolution supporting this.

The President also highlighted the technical activities held all over India since the previous AGM, and urged the State Centers to step up the technical programmes.

While presenting the Annual Report with the Statement of Accounts of ISLE for the year 2005-06, the Hon. General Secretary and the Hon. Treasurer pointed out some of the printing and other mistakes and conveyed the decision of the Governing Body to recirculate these to the members after reprinting with corrections. The AGM gave its formal approval for the Annual Report and the Statement of Accounts.

The AGM also approved the reappointment of the Auditors for the year 2006-2007.

When the President invited questions from the members, the ensuing discussions brought out the importance of Lighting Education, particularly short-term courses for various user groups within the lighting community.

Election

Consequent to the decision in the AGM, the Hon. General Secretary has announced the election for a new Governing Body and called for Nominations from among the Regular Fellow Members of ISLE on 26th December 2006. The last date for submission of nomination is 8th February, 2007.

Simultaneously a Scrutiny Committee has been constituted for conducting the election process once the nominations are received.

Mr. N. Nagarajan, Convenor
Dr. Mrs. Savithri Ramamurthy
Mr. Anurag Roy

Education and Training Committee

The Education and Training Committee received nominations for the ISLE-Industry national scholarship scheme. The GB approved the scholarships to the following candidates to be paid in line with the practice followed in earlier years.

Shri Sanjib Gayen

B.E. (Elec.)
Bengal Engineering and Science University, Howrah

Md. Sahanawaj Mondal

B.E. (Elec.)
Bengal Engineering and Science University, Howrah

Shri Prateek Shrivastava

B.E. (Elec.)
Manipal Institute of Technology, Manipal

Ms. Pooja Agarwal

B.E. (Elec.)
Manipal Institute of Technology, Manipal

Shri Rahul Gupta

B.E. (Elec.)
Manipal Institute of Technology, Manipal

Shri Sachin Singha

M.Tech., (Illumination Tech.)
Manipal Institute of Technology, Manipal

Shri Sagnik Majumdar

B.E. (Elec.)
Jadavpur University

Shri Akashdeep Banerjee

B.E. (Elec.)
Jadavpur University

Ms. Sucheta Mondal

M.E., (Illumination Engg.)
Jadavpur University

Ms. Prattusa Kar

M.E., (Illumination Engg.)
Jadavpur University

However, the GB felt that the concerned Institutions/ Universities should give the details of work done or project work to be undertaken before the disbursement of scholarships.

EU Light India

February 13-16, 2007, Bangalore

The third training programme of the EU Light India project being coordinated by ISLE Karnataka State Centre is being held in Bangalore at the Hotel Atria from February 13 to 16.


The programmes at Mumbai and Delhi were very well received and based on interaction and feedback received, the Bangalore programme has been improved. For those who missed the earlier programmes can take advantage of this.

The Government of Karnataka is giving due importance to the training program and Shri Dilip Rau, Additional Chief Secretary & Principal Secretary of Energy Department will be inaugurating the training program.

The evaluation and assessment seminar on February 16 will be attended by Shri P.B.Mahishi, Chief Secretary to the Government of Karnataka.

The Karnataka Government has directed Municipalities, Tourism Department and the ESCOMS to depute their engineers to attend the program and gain an insight into the European practices and development, which has a significant interest in energy conservation.

The workshop on 15 February will be chaired by the Director General Central Public Works Department and the Director General Central Power Research Institute. This program would pave the way for further interaction between India and Europe in the fields of Lighting and energy conservation.



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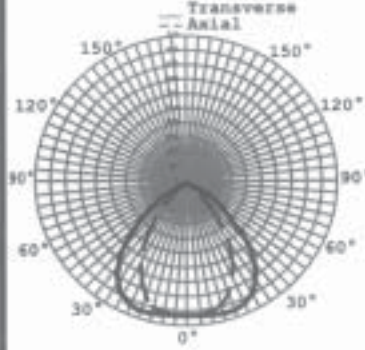

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Energy conservation in street lighting is of particular interest as the street lighting comes on at a time when the power systems are already struggling to meet the peak demand in the evening.

Contact

Mr. M.S.N. Swamy,
EU ISLE Project Coordinator & Hon. Secretary,
ISLE Ksc, No.8, P.R.Layout, 1st Main,Seshadripuram,
Bangalore 560 020 Ph: (R) 23441952
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S.L. Jadhav, Chairman, ISLE
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09845447335

CALCUTTA STATE CENTRE

Technical Talks in the last Quarter

The Calcutta State Centre organised a series of technical talks in the last quarter.

On September 18 a technical lecture was organised at the Saturday Club. The speaker was Mr. C.R. Datta, Business Excellence Manager in BU Lighting Electronics at Philips India. His lecture covered the subject of the DALI protocol.



Dr. Roy being felicitated by Mr. Asthana

Dr. Biswanath Roy, Reader in the Electrical Engineering Department at Jadavpur University delivered a lecture on the Electrochromic Window System and Its Applications. This lecture preceded the 18th Annual General Meeting of the Calcutta State Centre on November 17.

On December 18, Mrs. Sudeshna Mukhopadhyay, General Manager LiDAC & SSL, Philips Electronics India gave a talk on the important subject of Light and Health at the Saturday Club.



Mrs. Mukhopadhyay making her presentation

18th Annual General Meeting

November 17, 2006

The 18th AGM of the Calcutta State Centre was held on November 17 at the Meeting Hall of the Shri Laxmi Narayan Mandir in Kolkata. The AGM was preceded by a technical lecture by Dr. Biswanath Roy (see above).

MUMBAI STATE CENTRE

Lecture on LEDs and Fibre Optics

October 5, 2006, Mumbai

The Mumbai State Centre organized a technical presentation on LEDs and Fibre Optics – Technology and Application at the Nehru Planetarium in the month of October. The speaker was Mr. Michael Morrison, Managing Director of Crescent Lighting, UK. The programme was organized in collaboration with Versatech Hitech Lighting.

15th Annual General Meeting

December 13, 2006, Mumbai

The Mumbai State Centre held its 15th AGM on December 13.

The Hon. Secretary Ar. Rohini Mani welcomed the members present but handed over the mike for conducting the meeting to Mr. A. Auddy since she was unwell.

The agenda was approved and the minutes of the last AGM approved. The salient points of the Annual Report were read and approved.

Mr. P.C. Barjatia informed the meeting that the National Workshop on Vision for Lighting Education and Research in India at Pune in April had resulted in educational activities in lighting at educational institutions such as the initiation of a student platform at the Bharti Vidyapeeth in Pune and the establishment of the Lighting Research Academy at MAAER's MIT and efforts there to launch programmes in lighting technology.

In response to a query he informed the meeting that a visit to the Shri Gajanan Invention and Advanced Research Centre at Shegaon could be organized when Prof. B.K. Dash returned from the US. In response to a suggestion he said that an attempt will be made to conduct a seminar to create awareness on the need for proper lighting in schools and homes.

The appeal by Ar. Rohini Mani and Mr. Barjatia for volunteers for Sub Committee work received an immediate response with the following members coming forward:



Messrs. P.K. Bandyopadhyay, A.T. Valia and K. Naveen

Mr. S.P. Goswami, BEST

Mr. K. Vinodraj, BEST

Ms Oindrila Hazra, Bajaj Electricals

Mr. Rajesh Naik, Crompton Greaves

Mr. Shirish Deshmukh, Crompton Greaves

Mr. Bharat Jadhav, TCE

Thanking them, the Chairman informed the meeting that the MSC Committee would meet on the second Friday of every month and all interested members were encouraged to attend.

The Chairman then discussed the issues of Long Distance Learning and Professional Certification for Lighting.

The AGM ended with a vote of thanks by the Hon Secretary.

The AGM was followed by a presentation on Energy Efficient Lighting by Mr. K. Naveen, the Convenor of the Programme Sub Committee of the State Centre. The Chief Guest for the Programme was Mr. P.K. Bandyopadhyay, Past President of ISLE and the question and answer session was chaired by Mr. A.T. Valia, former Vice President of the Society.

In his Vote of Thanks, Mr. Stan Alvares thanked Crompton Greaves for their support and sponsorship. The programme was followed by cocktails and dinner.

INDORE LOCAL CENTRE

Presentation on Lighting our Heritage
November 19, 2006

Indore Local Centre organised an interesting presentation by Architect Himanshu Dudwadkar on the

different issues in lighting heritage buildings and sites. The Chief Guest at this function was Dr. (Mrs.) Umashashi Sharma, the Mayor of Indore.



L to R: Dr. (Mrs.) Umashashi Sharma, Mr. Dileep V. Dharkar, Mr. Akhilesh Jain and Ar. Himanshu Dudwadkar

CIE ACTIVITY

26th Session of the CIE
July 4-11, 2007, Beijing

The papers and technical programme for the 26th Session were finalised at a meeting of the CIE Board in Vienna, at the end of October. The response to the call for papers was amazing, with almost 350 submissions. In a day-long meeting, the Divisional Directors selected 96 papers for oral presentations with the majority of the remaining submissions being selected as posterpapers.

The last Session accommodated 72 oral presentations and to increase the number in 2007, the Divisional Directors decided to reduce the number of Workshops from six to four. This means that the first day of the conference will have a full day of three parallel sessions of papers and the final two days will have three parallel sessions of papers followed by two parallel workshops in the afternoon. As in the case of the last session, time is set aside, between the oral presentations and the workshops, for the viewing of the posters, with their authors in attendance.

Each day of the conference will open with an invited paper in a plenary session. After the opening ceremony on Thursday, 5th July, an invited paper from China will explore lighting culture in that vast and diverse country. This paper will also be of interest to accompanying persons who are invited to the opening ceremony and the first plenary session.

Opening the second day will be an invited paper by Dr. János Schanda (Hungary) on the metrology of LEDs, including the issue of their colour rendering properties. Dr. Ken Sagawa (Japan) will introduce the third day through his invited paper the lighting for the elderly and the visually impaired.

The presented papers have been grouped by CIE Division and by major divisional themes and will be presented in blocks of four papers, each 15 minutes long. A few themes are: circadian rhythms (Div. 6); urban nightscape (Div. 5); colour rendering (Div. 1); LEDs and luminaires (Div. 2); daylighting quality (Div. 3); roadlighting (Div. 4) and image technology (Div. 8).

The four workshop topics are colour rendering (Div. 1); germicidal effects of radiation (Div. 6); office lighting (Div. 3) and the applications of photobiology (Div. 3+Div. 6). These cover topical issues and ones involving intense activity by CIE technical committees.

Following the conference part of the Session are the Divisional Meetings which will be held over three days (Monday, 9th July to Wednesday, 11th July).

The Divisional Meetings are open to not only divisional members but to anyone interested in the work of the CIE. A full Sessional registration includes attendance of the divisional meetings. These meetings are in three parallel sessions but arranged, where possible, to avoid clashes for people with common interests (for example of both Division 1 and 2 work).

The Session is being hosted by the Chinese National Committee of the CIE at an excellent facility adjacent to the new Olympic Stadium for the 2008 Games. The conference centre is modern, with excellent facilities, all connected to a range of hotel accommodation suiting most budgets. A number of cultural, tourist and social events will occur during the seven days of the session. Most are included in the registration fee, except the Conference Banquet, which will cost USD50. Details of the social programme are available on the CIE website, together with the provisional programme of papers, workshops and divisional meetings. I believe that the Divisional Directors have tailored a fascinating programme of the latest research on light and lighting. The quadrennial CIE Sessions are the only truly international lighting conferences, workshops and technical meetings.

The programme for Beijing is outstanding and is taking place in one of the oldest and most fascinating of the world's capitals. It would be a pity to miss the opportunity.

It is with pleasure that I add to the invitation from China to attend the 26th Session of the CIE, in Beijing from 5th to 11th July, 2007.

I hope to see you there,

Warren Julian
CIE Vice President Technical
(Reproduced from CIE News)

Registration Fees:

	Before 31.3.07	After 31.3.07
Full Session	RMB 4000	RMB 4800
Conference	RMB 3600	
Division Meetings	RMB 1200	RMB 1600
Full Session (Student)	RMB 2000	RMB 2400
Conference (Student)	RMB 1600	RMB 2000
Division Meetings (Student)	RMB 800	RMB 1200
Accompanying Person	RMB1200	RMB1600

(Note: US\$1: = 7.7 RMB approx.)

For further information contact:

Ms Shuang Yang
CICCST/CIE2007
86 Xueyuan Nanlu
Beijing100081
P.R. China
Fax: +86 10 62174126
Email: syang@cie2007.org.cn
www.cie2007.org.cn

New National Committee of CIE

We are happy to inform you that the CIE National Committees have approved the admission of a new CIE National Committee:

Slovak National Committee of CIE
Karpatska 3
811 05 Bratislava 1
Slovak Republic
tel./fax: +421 2 5244 4092
President: Milan Hrdlik
Vice-Presidents: Dionyz Gasparovsky,
Miroslav Drinka

New TCs

The following new TCs were established:

TC 1-69: Colour Rendition by White Light Sources
Chair: Wendy Davis, USA

Terms of Reference: To investigate new methods for assessing the colour rendition properties of whitelight sources used for illumination, including solidstate light sources, with the goal of recommending new assessment procedures.

TC 6-61: Measurement of radiation using the phytometric system for plant application

Chair: Gilberto da Costa, Brazil

Terms of Reference: To prepare a document intended to provide growers, lamp manufacturers, greenhouse and growth-chamber designers, lighting engineers, architects, and plant scientists and engineers with a concise reference

for the use of the phytometric system for measuring radiation for plant photosynthesis and related processes.

The following new reporterships were established:

- Alternative Forms of the CIE DE2000 Colour-Difference Equation
Reporter: Mike Pointer, UK
- Scene Dynamic Range
Reporter: Jack Holm, USA
- Spectral and colorimetric electronic data exchange replacing CIE TC 2-61.
Reporter: Mike Pointer, UK.
- Occupational UV protection by disposable gloves
Reporter: J. O'Hagan, UK

New CIE Supportive Members

We are pleased to announce that Everfine Photo-E-Info Co. Ltd. China and Intralight O. Liagki and Co. Greece joined CIE as Supportive Members.

Supportive members benefit from the right to use the CIE Supportive member logo on their letterhead and in their publications so as to show that they are fully up to date with the latest information on world wide lighting trends, research and standards, and, depending upon membership category, the internal or external exploitation right of CIE publications. Supportive Members of the CIE also provide additional support that helps CIE to carry out its work.

Supportive Membership is open to companies and organisations working on an international or regional scale, having an interest in light and lighting and wishing to support the work of the CIE. Such organisations may include equipment manufacturing companies, commercial organisations, consultants and lighting designers, local government and government departments, educational organisations, etc.

The level of support is classified by the amount of annual membership fees and benefits received.

- Supportive Member: • 500
- Silver Supportive Member: • 3000
- Gold Supportive Member: • 8000

More information on this membership scheme can be obtained from the CIE Central Bureau (ciecb@ping.at).

CIE PUBLICATIONS

Colorimetry - Part 1: CIE Standard Colorimetric Observers

CIE Standard S 014-1/E:2006

This CIE Standard replaces ISO/CIE 10527:1991. This Standard contains only minor changes from the previous

Standard, it has now been clarified that the values of the colour matching functions apply for standard air to make the Standard conform to other CIE photometric and colorimetric data.

Colours with different spectral compositions can look alike. An important function of colorimetry is to determine whether a pair of such metameric colours will look alike. It has long been the practice in colorimetry to make use of sets of colour-matching functions to calculate tristimulus values for colours: equality of tristimulus values for a pair of colours indicates that the colour appearances of the two colours match, when they are viewed in the same conditions by an observer for whom the colour-matching functions apply. The use of standard sets of colour-matching functions makes the comparison of tristimulus values obtained at different times and locations possible.

This International Standard specifies colour-matching functions for use in colorimetry. Two sets of colour-matching functions are specified:

Colour-matching functions for the CIE 1931 standard colorimetric observer

This set of colour-matching functions is representative of the colour-matching properties of observers with normal colour vision for visual field sizes of angular subtense from about 1° to about 4°, for vision at photopic levels of adaptation.

Colour-matching functions for the CIE 1964 supplementary standard colorimetric observer

This set of colour-matching functions is representative of the colour-matching properties of observers with normal colour vision for visual field sizes of angular subtense greater than about 4°, for vision at sufficiently high photopic levels and with spectral power distributions such that no participation of the rod receptors of the retina is to be expected.

The values in the tables of the colour matching functions and chromaticity coordinates of the CIE 1931 and 1964 standard colorimetric observers are identical with those in the previous standard.

This standard has been approved by CIE National Committees. It may be obtained via the website of the Central Bureau of the CIE (www.cie.co.at).

Price of this standard: EUR 48,- (Members of national CIE organisations get 50% discount).

Colorimetry - Part 2: CIE Standard Illuminants CIE Standard S 014-2/E:2006

This CIE Standard replaces ISO 10526:1999/CIE S005:1998. It contains only minor changes from the previous standard, mainly concerning the wavelengths that

are to be taken as being in standard air, to make the Standard conform to other CIE photometric and colorimetric data.

CIE standard illuminants are used in colorimetry to compute the tristimulus values of reflected or transmitted object colours under specified conditions of illumination. This International Standard specifies two illuminants for use in colorimetry:

CIE standard illuminant A

This is intended to represent typical, domestic, tungsten-filament lighting. CIE standard illuminant A should be used in all applications of colorimetry involving the use of incandescent lighting, unless there are specific reasons for using a different illuminant.

CIE standard illuminant D65

This is intended to represent average daylight. CIE standard illuminant D65 should be used in all colorimetric calculations requiring representative daylight, unless there are specific reasons for using a different illuminant. Variations in the relative spectral power distribution of daylight are known to occur, particularly in the ultraviolet spectral region, as a function of season, time of day, and geographic location. However, CIE standard illuminant D65 should be used pending the availability of additional information on these variations.

The numerical values of the relative spectral distributions of standard illuminants A and D65 defined by this Standard are the same, within an accuracy of six significant digits, as those defined in earlier versions of these illuminants.

This standard has been approved by CIE National Committees. It may be obtained via the website of the Central Bureau of the CIE (www.cie.co.at).

Price of this standard: EUR 38,- (Members of national CIE organisations get 50% discount).

Proceedings of the ISCC/CIE Expert Symposium '06, 75 Years of the CIE Standard Colorimetric Observer

16-17 May 2006, Ottawa, Ontario, Canada

CIE Division 1 and ISCC jointly organized a symposium to celebrate the 75th anniversary of the CIE 1931 Standard Colorimetric Observer, to discuss the many advances that have been made since its introduction, to understand the current state of colorimetry and colour appearance, and to provide guidance on directions for future work.

The meeting was divided into seven main sessions:

- Standard Observer
- Colour Matching Functions
- Instruments and Standards

- Temporal and Spatial Issues
- Application of the Standard Observer
- Colour Appearance
- Colour Differences
- Colour Management
- Discussion and included a Poster Session.

A general theme throughout the discussion, that summarized the hot topics of the symposium, was the need for more comprehensive colour appearance and colour difference models. The current models take into account only a relatively small number of factors that can affect the appearance of objects and images. It was recommended that models be developed that include the effect of spatial and temporal factors, that are applicable to all levels of illumination from photopic to scotopic, and that take into account both normal variations in visual functions and changes in visual functions with aging. A second theme was the assessment of visual appearance and visual differences, or more specifically, the measurement of other attributes of surfaces such as gloss, translucency and texture.

The Proceedings contains the full text of all the presented 27 papers and 5 posters.

The publication consists of 200 pages with 158 figures and 22 tables. A CD-ROM with all papers in a searchable form is included. CIE x030:2006 is readily available via the website of the Central Bureau of the CIE (www.cie.co.at).

The price of this publication is EUR 128,— (Members of the CIE National Committees get 50% discount).

A Framework for the Measurement of Visual Appearance CIE 175:2006

Visual appearance can be one of the most critical parameters affecting customer choice and it needs, therefore, to be quantifiable to ensure uniformity and reproducibility. A starting point in assessing the appearance of a consumer product might be the measurement of its colour. A description of its total appearance, however, cannot be achieved by the definition of colour alone; other attributes of the material from which it is fabricated contribute to the overall appearance.

Starting from a definition of soft metrology and a description of measurement scales, this report describes a framework on which a set of measurements could be made to provide correlates of visual appearance. It will be shown that the interactions between the various components of the framework are complex, that physical parameters relating to objects are influenced, at the perception stage, by the physiological response of the

Continued on page 16

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Luminaires for daylight

Martine Knoop - LiDAC International

Daylight and artificial light are two fundamentally different light sources. Daylight is constantly changing. It is dynamic in colour temperature, quantity, direction, ratio of diffuse and direct components, and intensity. These variations are determined by the position of the sun and the weather conditions. Being a point source, the sun produces direct accent lighting with an ever-changing direction, intensity and colour temperature because its position changes throughout the day.

When there are clouds in the sky, the direct sunlight is scattered and a large-area source is formed, creating indirect diffuse lighting. With artificial light, we can only imitate these dynamics using a combination of lamps, luminaires and lighting control systems, without having the surprising random effects that occur under daylight conditions. By contrast, with artificial lighting we can control the dynamics ourselves to create any required lighting conditions.

Because daylight is dynamic in all of the respects outlined above, it is hard for us to control and redirect it exactly as we want to. A window can determine the luminous distribution of daylight in a room in a restrictive sense. We can influence the direction, the direct and diffuse components and the intensity of daylight within the window plane, but we cannot control the actual light source. Nonetheless, a window can be considered as a luminaire for daylight. Architects, lighting designers and researchers have tried to redirect light by means of facade

constructions, window design or daylighting systems. This article looks at the areas on which daylight design has focused in recent decades and concludes with the latest developments in architecture, which call for a fresh approach.

Facade constructions and window design

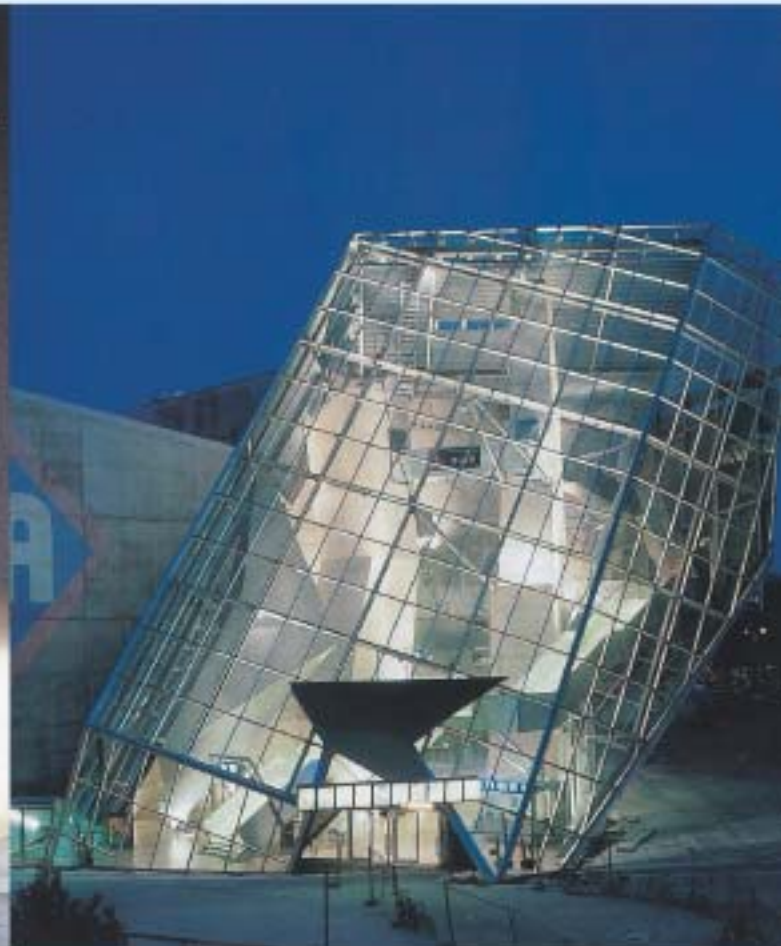
In the past, low load-carrying capacity and high heat loss through window planes were restricting factors for the design of the facade and window openings. Window openings offered a limited means of influencing or controlling the light. The most important facade parameters for regulating the amount of daylight that enters a room were window size, depth, position and orientation.

Although the main aim was to maximise the amount of (diffuse) daylight in a room, a number of architects manipulated these parameters to create an aesthetic effect. If we are looking from the outside, it is direct sunlight that has the greatest impact; it gives shape

- 1 Notre Dame du Haut in Ronchamp by Le Corbusier
- 2 UFA-Kino, Dresden, Germany by Coop Himmelb(l)au



1



2

to a building. If seen as a luminaire for indoor lighting, a window represents the source of direct and diffuse daylight. Windows in facades that face the sun are kept small to prevent glare and overheating. Small windows, deep window frames and thick wall construction restrict the direct sunlight coming in and diffuse the light even more, as can be seen, for example, in Notre Dame du Haut in Ronchamp (Le Corbusier, picture 1).

By limiting the amount of direct sunlight that enters a building, it is possible to create a moving pattern of rays of light, as can be seen, for example, in the Pantheon in Rome (see top right, page 12). Thanks to the use of steel constructions, building envelopes have become thinner and - as a result of the improved insulation capacity of glazing materials - window openings have become larger. This has led to large energy-saving glass facades (picture 2).

Daylighting systems

Traditional windows positioned in the facade illuminate rooms unevenly, even when these windows are large. The illuminance levels are high near the window opening and decrease fairly rapidly as one moves deeper into the room. A window typically brings light into the room from the side.

In the early 1990s, research into daylight design focused on the best possible use of natural light, i.e. how to redirect the light, creating lower levels near the facade and increasing the illumination levels elsewhere. A comparison can be made here with the development of luminaires for artificial light sources, where new technologies such as reflectors with OLC (Omnidirectional Luminance Control) and micro-prismatic structures have led to new luminaire designs. Modifications have been made to the window plane, and innovative materials - some the same as for luminaires - have been used to take



1

daylight deeper into the room, to control and distribute direct sunlight and to minimise the above-mentioned differences. Examples of these 'daylighting systems' are holographic optical elements, mirrored louvers, heliostats and prismatic glazing (see top left and centre, page 12).

As research has shown, just how effective daylighting systems are depends very much on climatic conditions. In milder climates, flexible systems such as moveable blinds are recommended because they use the direct sunlight when it is there but do not obstruct the window plane when conditions are cloudy. In sunny climates one can be sure that there will be sunlight, and fixed systems such as mirrors and light shelves can be used. Research and development work on daylighting systems is still ongoing, but developments in architecture mean there is a need for new approaches to openings in the building skin.



2

Lighting in blob architecture

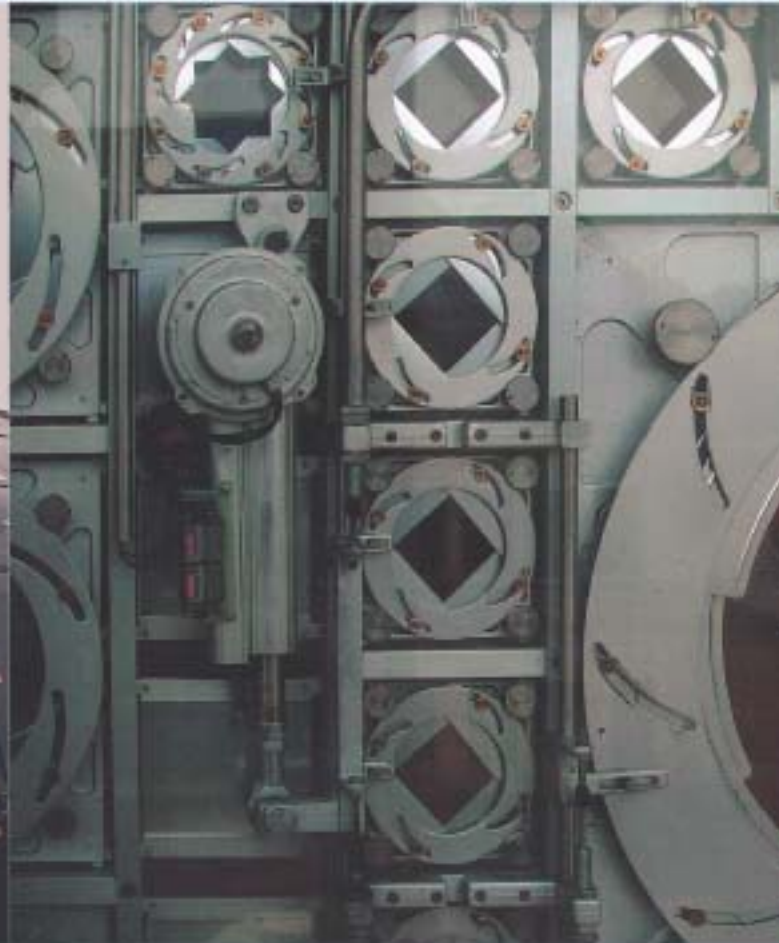
New materials have been developed that offer greater design freedom for the facade. In particular, better insulation values, improvements in the properties of glass materials and the possibilities to deform glass panels have created opportunities for new types of window openings. In addition, semi-transparent and translucent materials that transmit daylight to some extent have been developed, e.g. light-transmitting concrete, sandblasted glass surfaces, plastics and membranes (picture 1).

By far the most interesting challenge is presented by liquid design or blob architecture (blob = binary large objects), an architectural style with free-form, fluidly curved surfaces made possible by new technologies and software modelling (pictures 2 and 3). This opens up completely new ways of looking at luminaires for daylight. Now, the position and orientation of all the window openings in the facade can be different,

1. Use of membranes in the National Space Centre in Leicester by Nicholas Grimshaw and Partners
2. London City Hall by Sir Norman Foster
3. Kunsthaus in Graz by Peter Cook and Colin Fournier
4. Window detail of Institut du Monde Arabe in Paris by Jean Nouvel



3



4

and the windows do not necessarily have to be in a vertical facade or a flat plane in a roof. They can be placed wherever they are needed. This makes it possible to develop completely new daylighting strategies.

New daylighting luminaires for the facade have to be developed to 'control' the daylight contribution in blob architecture. Since the building skin is one of the areas of focus in blob architecture, in many cases the application of daylighting systems might be dismissed. In order not to conflict with the architecture, solutions have to be found within the facade, or at the inner side of the facade. It is not only the lack of flatness of the surface that presents a challenge: it may also no longer be possible to assume a certain thickness of a construction plane. The modification parameters that applied in the past are less relevant now. Although it was built back in 1988, l'Institut du Monde Arabe in Paris by Jean Nouvel gives a good

indication of possible future developments in daylighting strategies (picture 4). The main focus should be on technology-based solutions, reinforcing the principles on which blob architecture is based. ■

(Reprinted with permission from the International Lighting Review)

human visual system and, in addition by the psychological aspects of human learning, pattern, culture and tradition.

The result might be to conclude that an attempt to measure appearance may be too bold a step to take. Thus, a sub-framework is considered in terms of what can now be measured, and what might be measured after further investigation and research. By dealing with the optical properties of materials it is seen that there are, perhaps, four headings under which possible measures might be made: colour, gloss, translucency and texture. It is recognised that these measures are not necessarily independent; colour may influence gloss, colour will certainly influence translucency, and texture is probably a function of all three of the other measures.

Colour measurement, colorimetry, is based on the measurement of spectral reflectance, and is an established science that is possible using commercial instrumentation available at reasonable cost. Two shortcomings are identified. First, there are a number of modern materials where colour measurements made using a single pair of illumination/viewing angles is not sufficient to describe the perceived colorimetric effect. Thus, measurement at more illumination/viewing angle combinations is required. Second, the traditional, CIE recommended colorimetric parameters, while providing correlates of visual percepts, are not able to predict the absolute appearance of a coloured sample: colour appearance models are now able to do this.

The measurement of gloss is an established methodology but there is some doubt as to the scientific basis for making the measurements using the present method and attempts are being made to define alternative approaches. The extension of gloss measurement, which is essentially a measurement made at a specific angle depending on the apparent gloss of the sample, to investigate the shape of the gloss peak, should provide more information.

Translucency is a subjective term that relates to a scale of values going from total opacity to total transparency. This whole subject area needs investigation to find a rigorous measurement solution that will probably be industry specific.

Texture is a harder variable to measure. The advent of digital imaging systems makes the acquisition of images of materials relatively easy, assuming due consideration is given to the resolution of the image capturing device, be it a camera or a scanner. Characterising these images to give accurate CIE based colorimetry is now possible and the application of suitable analysis software should be able to provide measurement scales that relate to the perceived texture. The idea of establishing a series of 'standard' textures has been suggested.

The report is written in English, with a short summary in French and German. It consists of 92 pages with 41 figures and 4 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 EUR 72,-- (Members of the national CIE organisations get 50% discount).

Geometric Tolerances for Colour Measurements CIE 176:2006

In this publication the recommendations of the CIE Division 2 "Physical Measurement of Light and Radiation" are given on the definition of geometries for the measurement of the colour of materials and the tolerances around those fundamental definitions that are required to provide an expected level of accuracy and reproducibility.

This publication documents, for the first time, definitive definitions of the geometric requirements for instrumental colour measurements. It further defines three levels of tolerances which will provide three ranges of accuracy and reproducibility so as to clearly define what is required for the highest level of inter-laboratory agreement and what will be acceptable for industrial or commercial applications of basic colorimetry.

The terms and symbols used in this report are intended to be consistent with the existing standards in the International Organisation for Standardisation (ISO) and in particular with ISO standards 5-1 and 5-4.

The report is written in English, with a short summary in French and German. It consists of 24 pages with 5 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 EUR 44,-- (Members of the national CIE organisations get 50% discount).

FORTHCOMING EVENTS

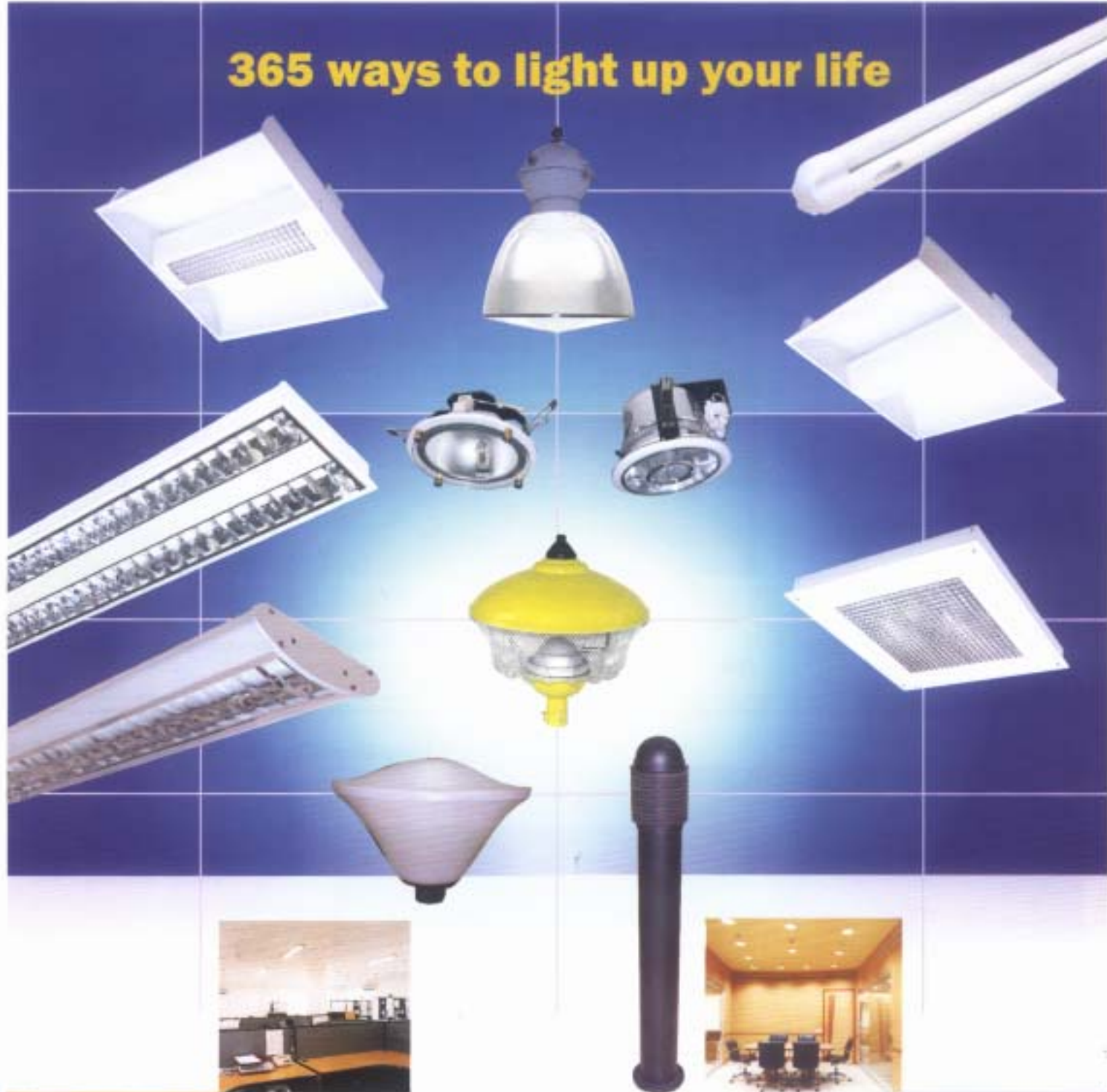
Professional Lighting Designers' Convention October 25-27, 2007, London

The first Professional Lighting Designers' Convention, PLDC will be held in London, UK from 25th to 27th of October, 2007 organised by the Professional Lighting Design magazine, PLD and the European Lighting Designers' Association, ELDA as a co-organiser. In addition many other professional associations have announced their support and willingness to participate. More than 800 participants are expected to attend the convention next year.

This convention is intended to document a major step towards the recognition of the profession of Architectural

Continued on page 19

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LEUKOS — an international venue for the publication of peer-reviewed articles that report research results of significant archival value in science and engineering disciplines related to lighting —

Vision and visual psychophysics ■ Physics related to new and existing lamps and lighting
■ Biology related to the non-visual effects of light
■ Basis and practice of photometry
■ Design and performance of luminaire optical systems

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■ Standards and innovations in design practice
■ Performance evaluations ■ LEDs

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Continued from page 16

Lighting Design and the strengthening of the ties between lighting designers, clients and the architectural World. On the other hand, PLDC will offer excellent opportunities for continuing professional development and networking with the key players on the market.

The conference will be built around a three-track professional conference:

- Lighting Application Research
- Lighting Application Case Studies
- Professional Practice Issues

An additional half-day track is planned for the Vox Juventa conference – a series of lectures given by young lighting designers, giving them the opportunity of addressing a professional public with fresh and innovative ideas and research.

For further information:

Louise Ritter
PLDC Event Management
Marienfelder Str. 20
D-33330 Guetersloh,
lr Ritter@via-internet.com
www.via-verlag.com/pldc

Lighting Fair 2007

6-9, March 2007, Tokyo, Japan

The 2007 Fair, marking the eighth in the series, will present an impressive array of products and technology featuring light equipment, light sources, related materials and components from Japan and abroad.

Range of exhibits:

- Luminaires for residential lighting, office lighting, merchandise lighting, outdoor lighting and others
- Lamps: fluorescent, high intensity discharge, incandescent, halogen, LED and others
- Materials and components for luminaires, lighting
- Lighting planning
- Information and specialized publications

For further information, please contact:

Secretariat:
SMJ - Space Media Japan Co., Ltd
Kosakaikan Bldg. 6F.
5-1 Kojimachi, Chiyoda-ku
Tokyo 102-8481, Japan
tel. +81 3 3512 5670
fax +81 3 3512 5680

Lightfair 2007

May 6-10, 2007, New York

The annual architectural and commercial lighting Conference organised by the Illumination Engineering

Society of North America (IESNA) is taking place in New York from May 6 to 10 this year.

This year, the conference will feature over 200 hours of CEU / LU-accredited educational options. Registrants can choose from among:

- 13 DAYLIGHTING Institute courses, including 1 two-day Fundamentals course
- 4 two-day LIGHTFAIR Institute courses
- 19 Workshops
- 4 Masters courses and
- 33 Seminars

For further information contact:

Brianne Jones
Conference Coordinator
LIGHTFAIR INTERNATIONAL 2007
240 Peachtree Street NW, Suite 2200
Atlanta, GA 30303
Phone: 404.220.2221
Fax: 678.686.5264
briannej@lightfair.com
www.lightfair.com

ILUMINAT 2007

31 May - 1 June 2007, Cluj-Napoca, Romania

The conference main themes are: "Lighting Energy Efficiency" and "New Trends in Lighting", developed within the following sections:

- Vision and Colour
- Interior Environment and Lighting Design
- Daylighting and Integrated Systems
- Exterior Lighting
- Light and Architecture
- Lighting Installations
- Other Applications

The 4th International Conference ILUMINAT 2007 will provide a unique regional forum to discuss and debate the latest developments in energy and environmental impact of lighting systems, the policies and programs adopted and planned, the strategies to be implemented for further progress, as well as the technical and commercial advances in the dissemination and penetration of energy efficiency in lighting.

The target audience is lighting professionals including lighting and building science researchers, engineers, system designers and project managers, academia and experts, architects and urban planners, local community and government representatives, policy makers, national and international organizations and agencies, manufacturers and retailers organizations, students.

For further information, please contact:
Conference Secretariat:
Dr. Dorin Beu, Reader
Technical University of Cluj-Napoca
Lighting Engineering Center UTC-N
e-mail: dorin_beu@cluj.astral.ro
Dipl. eng. Marilena Măierean
Energobit Schröder Lighting

TECHNICAL PAPER

Continuing Lighting Education-Seminar Accreditation System

Anil Valia

Introduction

Members of many professional organizations in U.S.A. are required to earn some form of continuing education units or credits of knowledge and skills, and to maintain their professional standing. There are several Institutions and commercial / industry based lighting education centers which support this nationally recognized measurement of accomplishment by providing attendees to its seminars and workshops, short term training courses, etc., which are pre-certified educational opportunities, the ability to obtain such recognition in respective fields. Continuing Lighting Education is one of the fields.

In field of Lighting, Seminar Accreditation System comprises the Continuing Education (CEU), or its equivalent Learning Unit (LU); Lighting Education unit (LEU); continuing Learning Credits (CLC); Professional Development Hours (PDH) etc. are utilized as the measurement of participation in non-credit continuing education programs.

In this paper I would like to discuss such Seminar Accreditation System used in the USA and how in India such Professional bodies can use this system as far as Continuing Lighting Education is concerned.

USA Seminar Accreditation System

Following are the explanations to various terms used in the seminar accreditation system

- One CEU is defined as ten (10) contact hours of participation in an organized, continuing education experience under responsible sponsorship, capable direction, and qualified instruction.
- LU is defined as one (1) hour of instruction in such a Programme. Fractions of credits, down to a minimum of 0.25 units, may be earned in increments of 0.25 units.
- Other units or credits supported by various professional organizations equate the contact hours to units or credits earned in a variety of ways, eg.

- One CLC is defined as One (1) contact hour
- One PDH (Professional Development hour) is defined as One (1) contact hour
- Therefore it is recommended that the individual participant check with his or her professional organization to understand the basis upon which Units or Credits are earned as well as the Organizations reporting requirements and procedures.

Given below details are an overview and guidelines followed by various organizations in the USA.

AIA/CES (American Institute of Architects) through its Continuing Education Systems provide professional development opportunities to its members. CES was developed by the AIA to record professional learning as a mandatory requirement for architectural membership. It enables the architect to keep current, master new knowledge and skills and demonstrate professional responsibility. AIA members must complete 18 Learning Unit (LU) hours (8 in health safety and welfare-related topics) for annual Membership renewal.

Type of Credit needed: Learning Unit (LU)

Number of Credits needed to remain certified: 18

8 of the 18 must be in Health, Safety and Welfare related subjects.

Time Period for Re-Certification: 1 year

ALA American Lighting Association

Type of Credit needed: Continuing Learning Credit (CLC)

Number of Credits needed to remain certified: 6

Time Period for Re-Certification: 2 years

Courses are evaluated and hours are determined by ALA

NCQLP (National Council on Qualifications for the Lighting Professions) - Anyone who has the LC (Lighting Certificate) designation must learn 36 Lighting Education Units (LEUs) each three year cycle for recertification. It is the responsibility of each participant to keep a record of his/her involvement in these programs and to self-declare LEUs to NCQLP at the end of the three year period. Professional Engineers are currently required in a number of states to acquire professional development hours (PDHs or CEUs) for renewing a professional engineering license. Professional engineers should contact the appropriate state board of professional Licensing to obtain the latest requirement.

Type of Credit needed: Learning Unit (LU)

Number of Credits needed to remain certified: 36 LUE credits (Alternately an LC can earn 18 LEU credits and verify 25 years of industry experience)

Time Period for Re-Certification: 3years

1 LEU for every 50-60minute contact hour (instructional hour)

IDCEC Interior Design Continuing Education Council (CEU)

- **ASID American Society of Interior Designers**
Type of Credit Needed: CEU
Number of credits Needed to remain certified: 0-20 hours per 2 years – varies by state
Time Period for Re-Certification: 2 years
- **DIC Interior Designer of Canada**
Type of Credit Needed: CEU
Number of credits recommended to remain certified: 5 hours/1 year – varies by province
Time Period for Re-Certification: 1 year
- **IIDA International Interior Design Association**
Type of Credit Needed: CEU
Number of credits needed to remain certified: 20 hours per 2 years - varies by state
Time Period for Re-Certification: 1 year
- **NKBA National Kitchen & Bath Association**
Type of Credit Needed: CEU
Number of credits needed to remain certified: 5 hours
Time Period for Re-Certification: 1 year

ASLA American Society of Landscape Architects
Type of Credit Needed: PDH or CEUs
Number of credits needed to remain certified: varies by state

Florida Board of Professional Engineers
Members are required to self-register courses
Type of credits Needed: PDH (Professional Development hours) or CEUs
Number of credits Needed to remain certified: 8 PDH (4 in the area of practice; 4 in the area of laws & rules) Time period for Re-Certification: 2 years.

Association of Energy Engineers
Members take courses and self report to individual states on honor system (See Florida Board of Professional Engineers as an example)
Number of credits Needed to remain certified: varies by state (Approximately 8 hrs per 3 year Period)

Lighting Institute / Commercial Education Centre
Many Institutions and commercial / industry based lighting education centers and facilities exist in the USA which are acceptable and recognised by most Associations and States.

The following is the list (not necessarily complete) of such institutes/ centers offering Continuing Lighting Education Seminars, Workshops and Short Term Courses to support the nationally recognised measurement of accomplishment and helping the attendee to obtain such recognition as they are pre-certified educational opportunities.

- GE lighting institutes,

- Cooper lighting, The Source
- Philips lighting application centre
- The school of Chicago botanic garden
- Lighting Research Center
- University of Wisconsin
- Kirilin Company
- Osram Sylvania light point education centre
- Lightolier tech centre

One can earn such Credits by attending the Annual Conference or Light Fair Conferences organised by IESNA.

Current lighting courses offered by such educational facilities and associated Contact Hours available/ recognized by several Professional Institutes for continuing their Membership are summarized below as an example.

	AIA	AISD IIDA NKBA	ASLA	NCQLP	ALA
COURSE	CONTACT HOURS				
Fundamentals	20	19	20	17	20
Applications- Interiors	20	22	20	20	21
Applications- Exteriors	13	13	13	14	13
Landscape- Workshop	16	17	16	15	17.5
Lighting Legislation	11	-	11	11	11

Recommendations:

From the above, one can understand that in a country like the USA, the recognition of Membership as realized based on education and experience is not life long but one has to undergo further study and learn advancement happening in the field, where Lighting is also one of the subjects.

In India a similar system of Seminar Accreditation System should be followed by Institution of Engineers (India), Association of Architects, IIID, ISLE, IEE, IEEE, and other such national professional bodies/associations for continuing the membership.

Once such a system of Seminar Accreditation System is acceptable by various professional bodies, Lighting seminars, workshops, syllabus for short terms courses etc. have to be defined by the providers of such education and are to be approved by the respective professional bodies on the above lines.

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NEWS ABOUT MEMBERS

ISLE Member Awarded Doctorate

Mr. Chandrashekara Adiga S., Reader in the Department of Electrical and Electronics, Manipal Institute of Technology, Manipal and a Life Member of ISLE (M 1011) has been awarded a Ph.D. degree by Manipal University, Manipal, Karnataka on 26th December 2006 for his thesis titled "Optimization of Illumination System Designs using Neuro-Expert System and Study of System Reliability", carried out under the guidance of Professor Dr. Radhakrishna S. Aithal of M.I.T., Manipal and Professor Dr. R. S. Shanbhag.



In this research work, an effort is made to apply Artificial Intelligence to Interior Lighting Design, which is a first of its kind according to available reports. The two concepts of Artificial Intelligence, i.e., the Artificial Neural Network and the Expert System, called the Neuro-Expert System is applied to Interior Lighting Design. The work also concentrates indirectly on energy conservation and reduction in both the initial as well as the running costs which is done by optimizing the number of luminaires used in the lighting design. The entire work including the experimentation is carried out in the Lighting Measurement Laboratory of the Electrical and Electronics Department at M. I. T., Manipal.

The developed algorithm is of greater benefit for large interiors. Since the optimized value of the number of luminaires in the lighting design using the Neuro-Expert System is less than in a design using the conventional method, the savings are two fold: one in the initial cost of luminaires, their installation cost and the other in the form of reduction in energy and maintenance costs. The number of luminaires is reduced without compromising the quality of lighting or reliability of the designed lighting scheme.

The Neuro-Expert System provides an optimum because system it is accurate, economical and reliable and can contribute to the nation-wide effort to conserve energy.

Dr. Chandrashekara Adiga S. has published 2 papers in International Journals and presented 6 papers at National and International Conferences, including the Lux Pacifica 2002, New Delhi and Vision - 2004, Bangalore conferences of ISLE.

Dr. Biswajit Ghosh wins UKIERI Award

Professor Biswajit Ghosh, Director, School of Energy Studies was successful in winning the UK-India Education

and Research Initiative (UKIERI) Standard Award entitled "UK-India Network for II-VI Sensor Technology". The award was given to him by the British High Commission, British Council and Chancellor of the Exchequer of the Government of UK at a function on 18th January evening at Delhi.

Professor Ghosh is a well known figure for his expertise in making Photo-conducting and Photovoltaic devices. He is a pioneer in developing electrical contact using Electroless technology for the II-IV compound semiconductors like Cadmium Telluride and Cadmium Zinc Telluride where conventional electrical contact is very difficult. Technology developed by Dr. Ghosh has enormous applications in high energy imaging devices, LED, OLED .



High energy imaging using X-ray and Gamma - ray is an emerging tool for many applications in Science, Technology and Medicine. Professor Ghosh has been welcomed by the UK partner, Dr. Paul J Sellin of the University of Surrey to develop image processing devices. In this partnership Professor Ghosh will contribute his electrical contacting technology for efficient charge transfer process whereas the UK partners will contribute in device fabrication.

In past Professor Ghosh worked in the UK under the support from European Commission, Imperial College and Royal Society.

R&D UPDATE

R&D In Lighting

The millennium technology prize is the world's largest technology award equivalent to Nobel Prize for sciences and is awarded every second year by the Finnish Millennium Technology Prize foundation for outstanding invention that contributes to the improvement of the quality of life or sustainable development. The prize for the year 2006 was awarded to Prof. Shuji Nakamura for his development of bright blue LED, green GaN based LED, white light LED, and blue laser diode. Nakamura is professor of Materials and of Electrical and Computer Engineering at the University of California, Santa Barbara. He is also Co-Director of the Solid-state Lighting and Display Centre.

When he was at Nichia Laboratory, Nakamura developed in 1987 a novel technique of metal organic chemical vapour deposition in which the reactant gases passed in two directions over the substrate, which gave him better quality material of GaN. This formed the basis

for his development of bright blue LED, white LED, and blue laser diode.

The white light LED revolutionized illumination, and the development is compared by some to the development of incandescent bulb by Thomas Edison in the nineteenth century.

The blue laser diode has application in DVD technology. It can be used to increase the storage capacity and resolution of compact discs. The next generation high definition CD's using blue laser diode may be in the market soon.

After the announcement of the award, Nakamura said: "I would like to thank the Millennium Prize Foundation and the people of Finland for recognizing my research in solid state lighting and its implications. I am very honored to receive this Millennium Technology Prize. The University of California has a motto; the English translation is 'Let there be light.' This is a very good motto for our university. It also could serve as a motto for my own research. I hope that, as a result of my work, someday there will be lighting in parts of the world where today there is not even electricity."

V.D.P. Sastri

WEBWATCH

LRC Forms Research Group to Gather Circadian Data

The Lighting Research Center (LRC) at Rensselaer Polytechnic Institute is forming a collaborative group of researchers from around the world to collect data in different lighting applications using a special light-measuring device called the Daysimeter.

The group's goal is to create a cooperative forum of manufacturers, scholars, scientists, and physicians who are already working in clinical applications and work environments where photobiology and circadian light exposure could be important for health and productivity.

"The human circadian system responds to light in a dramatically different manner than the visual system," explains Mark Rea, PhD, the director of the LRC. "Light is the main stimulus that affects the human body's clock; circadian rhythms keep the body synchronized with the solar day."

Studies have shown that light impacts people's health and well-being. However, it has been nearly impossible to measure a person's quantity and quality of circadian light exposure accurately - until now.

The group will measure circadian light exposure with the Daysimeter, a field research tool developed by the LRC.

The Daysimeter is the first device to characterize light accurately by measuring spectrally weighted intensity, as well as timing and duration, of circadian light entering the eye, which affects the human body's clock.

Lightweight and easy to wear, the device also measures conventional light levels and records head movements in order to differentiate between rest/sleep periods and active/awake periods.

Ultimately, the Daysimeter will enable the design of light sources, luminaires (light fixtures), and lighting techniques that help people to maintain regular circadian functions such as the sleep/wake cycle and hormone production, explained Rea. This, in turn, may improve their health.

The LRC will explore clinical and special applications in which people could benefit from lighting specially tuned to the circadian system. These include hospitals, intensive care units, and assisted care facilities where patients do not have regular exposure to daylight or darkness, as well as work environments that do not allow for customary light and dark exposures, such as some military operations.

"The work of the Daysimeter User Group may lead to a better understanding of many health-related issues," says Rea. He went on to explain that those issues include:

- How premature infants develop;
- Appropriate learning environments for school children;
- Improved sleep for people with Alzheimer's disease and their at-home caregivers;
- Teenagers with delayed sleep phase disorder; and,
- Biophysical and epidemiological concerns for senior-care residents, night-shift workers, travelers with jet lag, and others with altered light-dark exposures and sleep patterns.

As part of the Daysimeter User Group, the LRC will participate in establishing a common protocol for the use of the Daysimeter.

LRC scientists will also conduct research, demonstration, evaluation, and educational activities related to its use.

The first meeting of the Daysimeter User Group is scheduled for March 7, 2007, at the LRC in Troy, N.Y. Interested parties can contact:

Patricia Rizzo at 518-687-7100 or rizzop2@rpi.edu.

Toulouse III University wins IEC Centenary Challenge:

Better urban lighting standards needed to improve both security and energy efficiency

The Université III Paul Sabatier in Toulouse, France, won the USD 15000 first prize in the IEC Centenary Challenge for a paper addressing the ties between standards, human vision, lighting, security and economic development. The prize was awarded during a ceremony at the Institute for Engineering and Technology in London, UK, on 14 December.

Written by Dr. Georges Zissis and Dr. Stuart Mucklejohn, "Standardizing mesopic vision conditions and incidence on light sources science and technology", studies how the absence of certain standards relating to human vision means that innovation in specific fields of urban lighting does not happen easily. The paper goes on to tie this lack of development to reduced security and quality of life in urban areas as well as to less energy efficiency and a slower rate of sustainable development.

The IEC Centenary Challenge was a competition for papers on the economic, business and social impact of International Standards on business. It was organized in association with The Economist magazine and in partnership with three leading professional engineering bodies: the IET (Institute of Engineering and Technology); IEEE (Institute of Electrical and Electronics Engineers); and VDE, the German association for electrical, electronic and information technologies.

The IEC Centenary Challenge was open to anyone affiliated with an academic institute, including members of faculty, individual professors, heads of faculty, and teaching or research staff.

Link:

http://www.iec.ch/online_news/etech/arch_2007/etech_0107/news_1.htm?mlref=etech

'Deck the Halls' Movie Features LED Kinetics Technology

'Tis the season for holiday film releases. If you see "Deck the Halls" this year, you will see LEDs in action - big time - thanks to the use of LED technology to decorate the film's featured home.

"Deck the Halls," stars Danny DeVito and Matthew Broderick as duelling neighbours. The plot thrusts intelligent LED lighting into the spotlight as DeVito's character attempts to turn his house into the world's biggest and most brilliant holiday display.

His ambitions are realized when the entire house is transformed into a traffic-halting multimedia light show made possible by LED technology.

"This is a film that literally hinges on the lighting - where the lights are a central character. Anything less than spectacular would have failed the story," said Jason

McKinnon of Electric Aura Lighting Design, who conceptualized the ground-breaking lighting sequences along with Rob Sondergaard.

"Based on their highly programmable and durable nature, we knew that LEDs were the only feasible choice to make our concept a reality."

The project was achieved using Color Kinetics' iColor Flex SL, which resembles a traditional holiday string light, but allows precise digital control of every node on the strand.

Each thimble-sized node houses a tri-color LED that's capable of producing 64 billion colors through additive color-mixing of red, green and blue light - much like a pixel in a video screen.

Strands of iColor Flex SL lined the home's exterior from top to bottom - comprising 14,300 nodes in all and essentially wrapping the home in a digital skin. Based on the vision of Deck the Halls director John Whitesell and production designer Bill Brzeski, holiday-themed light animations were designed and streamed via a media server to the LED nodes, which projected the content back.

The technical feats achieved for Deck the Halls are just the latest example of the leading expertise in intelligent LED lighting technology.

Stakes were especially high for this project, however, as the entire lighting scheme had to be defined, installed and programmed in just five weeks. The company's LED lighting technology plays a key "role" in Regency Enterprises' family holiday comedy.

Additional facts about Deck the Halls' LED lighting installation

- At full intensity, the 14,300 LED nodes drew just 7,150 watts of energy - the equivalent of four average hair dryers.
- By comparison, wrapping the house in the same fashion with conventional exterior string lights would have drawn approximately 100,100 watts - 14 times more than the LED installation - yet without the capability for programmable effects.
- The electrical current draw of the entire LED installation was 126 amps - which is the approximate draw of 1.3 average households.
- By comparison, the same configuration using conventional exterior string lights would have drawn 812 amps - approximately 6.5 times more than the LED installation, or the equivalent of 8 houses' worth of power.
- Each tri-color node of iColor Flex SL incorporates a microchip that was custom-designed making it an individually programmable "pixel."
- Filming was interrupted numerous times by small aircraft that were attracted to the set by the lights.

Anool Mahidhparia

LETTERS TO THE EDITOR

Hi Hari,

How are things in India? Melanie and I frequently chat about what a splendid time we had during our visit. The topic comes up frequently because she wears a lot of the items she bought during the trip.

Thank you for sending me the ISLE Newsletter - I found it very interesting of particular note was the exchange on the NCQLP qualification. I am most supportive of NCQLP and have an LC. I would encourage you to be in contact with them and see if you can get this instituted in India. I believe the more widespread the NCQLP qualification becomes that it will be a big boost to the stature of the profession and to those who practice lighting design. A universal qualification is better than a large number of local qualifications.

Lighting Design is too small a profession for that. One large umbrella exam would suit our size better.

Hope all is well with you.
Best personal regards,
Howard (Brandston)

PS. I am still uncertain that the Taj Mahal should be lighted.

MEMBERSHIP APPLICATIONS APPROVED BY GOVERNING BODY

New Members admitted on 22 nd December 2006

M. No	Name & Addresses	Grade	Centre
I(L)-0123	Xylon Electrotechnic Pvt Ltd A-491, 12 & 13 3rd Pasta Lane Colaba Mumbai, 400 005	Institutional	Mumbai
IM(L)-0123	Shah Institutional Chairman and CEO Xylon Electrotechnic Pvt Ltd A-491, 12 & 13 3rd Pasta Lane Colaba Mumbai, 400 005	Mr. Shekhar Kunjbehari Mumbai representative	
F(L)-0557	Mr. Dipak Kumar Pal 6 Adhar Chandra Das Lane Kolkata 700 067	Fellow (Life)	Calcutta
F(L)-0558	Mr. Sohil A. Shah 3rd Floor, Satguru 16 French Bridge Mumbai 400 007	Fellow (Life)	Mumbai
F(L)-0559	Mr. R. Subramanian A-6003, Gaur Green City Vaishav Khand, Indrapuram Ghaziabad	Fellow (Life)	Delhi
F(L)-0560	Mr. R. B. Singh H-12/7, F-Floor Malviya Nagar New Delhi 110 017	Fellow (Life)	Delhi
F(L)-0561	Mr. Avtar Singh Arora 68/5371, 1st Floor, Regarpura Karol Bagh New Delhi 110 005	Fellow (Life)	Delhi

F(L)-0562	Mr. Rakesh Kumar Singha ID-II/A-65, South Moti Bagh Nanakpura New Delhi 110 021	Fellow (Life)	Delhi
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F(L)-0565	Mr. Anit Kumar Mittal C-3 Silver Oak Apt.109 IP Ext Delhi 110 092	Fellow (Life)	Delhi
F(L)-0566	Mr. Arun Kumar V-12 Satya Sadan Satya Marg, Chanakya Puri New Delhi 110 021	Fellow (Life)	Delhi
M-1285	Mr. Chandrashekhar Digamber Damodar Office of Executive Engineer (Elect) Municipal Corporation, Town hall P 6, No 125, Aurangabad	Member	Mumbai
M-1286	Mr. Parmeshwas Rohidar Bansode Office of Executive Engineer (Elect) Municipal Corporation, Town Hall P 6, No 125 Aurangabad	Member	Mumbai
M(L)-1287	Mr. Mukesh Shankarlal Ailani Flat No 6, Harekrishna Apts. Gol Maidan, Ulhasnagar 421 003	Member (Life)	Mumbai
M(L)-1288	Mr. Amitabha Sanyal C & S Gewiss India Pvt Ltd 24 Park Street, 4th Floor Kolkata 700 016	Member (Life)	Calcutta
M(L)-1289	Mr. Nikhilesh De Legrand (India) Pvt. Ltd Rawdon Chambers D Block, 4th Floor Kolkata 700 017	Member (Life)	Calcutta
M-1290	Mr. Ashis Biswas 99B Ganguli Bagan East Road Kolkata 700 084	Member	Calcutta
M(L)-1291	Mr. Sanjoy Chandra 160 Nimu Goswami Lane Kolkata 700 005	Member (Life)	Calcutta
M(L)-1292	Mr. Harbans Singh Royal No: 3090 (LIG), Sector 70 Mohali 160071	Member (Life)	Delhi
M-1293	Mr. Vikas Sharma B26, Jangpura Extn. New Delhi 110014	Member	Delhi
A-0905	Mr. Sourav Kumar Jana A. M. S21 Santoshpur Main Road Kolkata 700 075	Associate	Calcutta
A(L)-0906	Mr. Jitendra Surana Priyanka Electronics & Electricals 1 Manook Lane Kolkata 700 001	Associate (Life)	Calcutta
A-0907	Mr. Prakash Mridha Rati 63 Avenue South Kolkata 700 075	Associate	Calcutta
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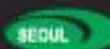


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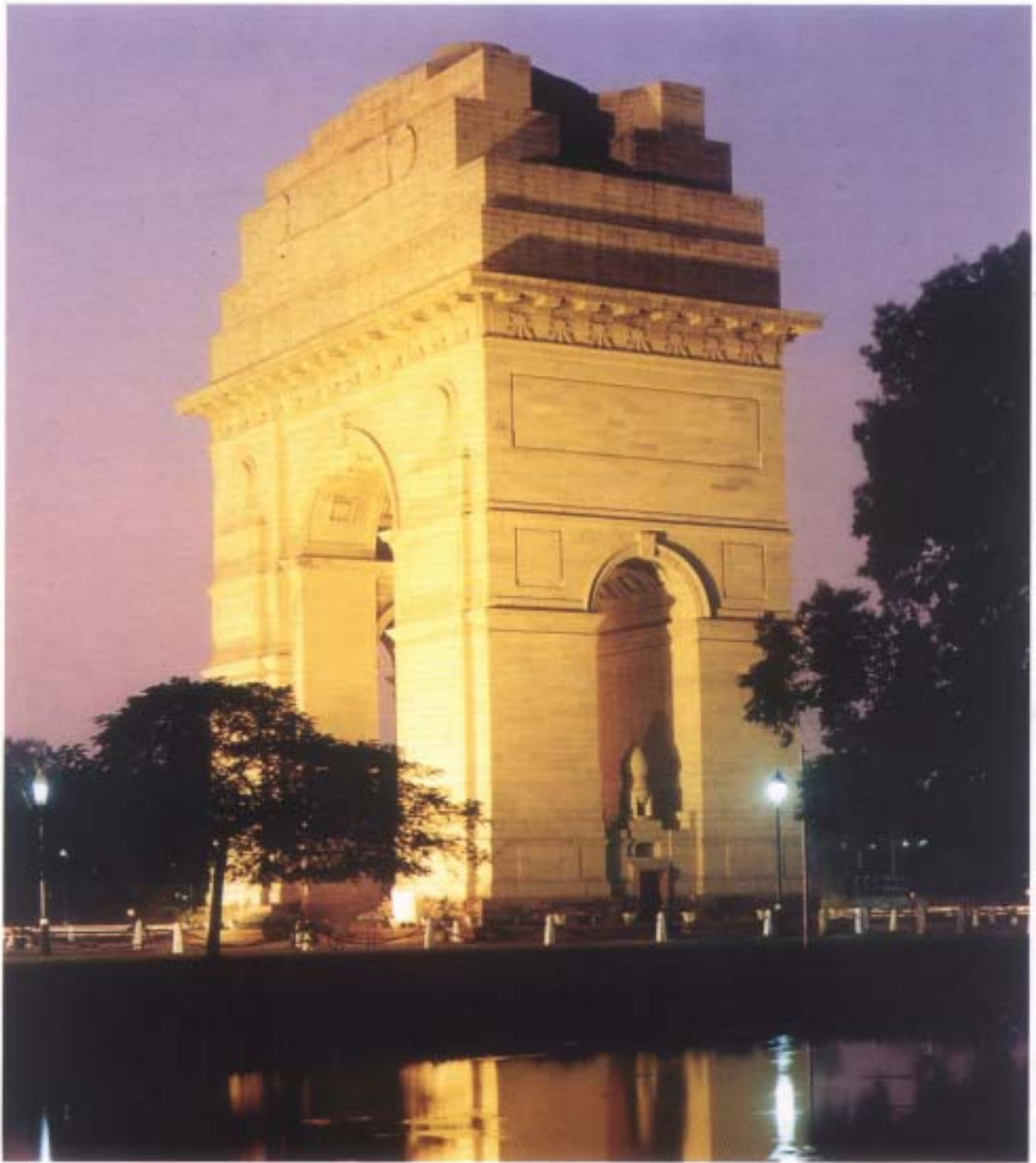
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