

แบบขอรับเงินรางวัลการตีพิมพ์เผยแพร่ผลงานวิจัย
จากกองทุนสนับสนุนการวิจัยและบริการวิชาการ คณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยขอนแก่น

ข้าพเจ้านายยิ่งสวัสดิ์ ไชยะกุล เริ่มทำงานเมื่อวันที่ 16 เดือน มิถุนายน พ.ศ. 2540

ปัจจุบันตำแหน่ง รองศาสตราจารย์ ระดับ สังกัดหลักสูตร/กลุ่มงาน สถาปัตยกรรมศาสตร์

โทรศัพท์ 085 025 7499 E-mail cyings@kku.ac.th

ซึ่งเป็น

- ผู้เขียนบทความวิจัยชื่อแรก (First author)
- ผู้เขียนบทความวิจัยที่ติดต่อกับวารสาร (Corresponding author)
- ผู้เขียนบทความวิจัยชื่อแรก ซึ่งเป็นอาจารย์ที่ปรึกษาหลักของนักศึกษาระดับบัณฑิตศึกษา

คณะสถาปัตยกรรมศาสตร์ ผู้ทำวิจัย ราย นาย/นาง/นางสาว
หลักสูตร

ได้เขียน/ร่วมเขียน บทความวิจัย เรื่อง

(ภาษาไทย) -

(ภาษาอังกฤษ) Illuminance standard for rural life context in Thailand

ซึ่งไม่เป็นบทความที่เป็นข้อกำหนดของการทำวิทยานิพนธ์หรือส่วนหนึ่งของวิทยานิพนธ์ของข้าพเจ้า โดยเป็นบทความใหม่ และได้รับการตีพิมพ์มาแล้วไม่เกิน 1 ปี (นับตั้งแต่วันที่ตีพิมพ์จนถึงวันที่ยื่นขอรับเงินรางวัล) โดยข้าพเจ้าได้ระบุชื่อผู้เขียนบทความและหน่วยงานที่สังกัด เป็นคณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยขอนแก่น แล้ว ใน วารสารวิชาการ / รายงานการประชุมวิชาการ ดังนี้

วารสารวิชาการ

ชื่อวารสาร วารสารวิชาการ ซึ่งเป็นวารสาร

- ระดับนานาชาติ ซึ่งอยู่ในฐานข้อมูล
- ISI (Institute of Scientific Information) และมีปัจจัยกระทบ (Impact Factor) (บทความละ 30,000 บาท)
 - ISI (Institute of Scientific Information) แต่ไม่มีปัจจัยกระทบ (บทความละ 15,000 บาท)
 - ฐานข้อมูลวารสารที่ สกว.รับรอง (บทความละ 10,000 บาท)
 - ฐานข้อมูลระดับนานาชาติ อื่นๆ (บทความละ 7,500 บาท)
- ระดับชาติ ซึ่งอยู่ในฐานข้อมูล
- ฐานข้อมูลที่ สกว. หรือ สกอ. รับรอง และมีการพิจารณาตรวจสอบจากผู้ทรงคุณวุฒิประจำวารสาร (Peer Review) (บทความละ 5,000 บาท)
 - มีการพิจารณาตรวจสอบจากผู้ทรงคุณวุฒิประจำวารสาร และมีปัจจัยกระทบ (บทความละ 4,000 บาท)
- ระดับสถาบัน ซึ่งอยู่ในฐานข้อมูล
- ศูนย์ดัชนีการอ้างอิงวารสารไทย (Thai Journal Citation Index Center) (TCI) แต่ไม่มีปัจจัยกระทบ (บทความละ 2,500 บาท)

รายงานการประชุมวิชาการ

ชื่อการประชุมวิชาการ The 8th Lux Pacifica Life and Lighting วัน/เดือนปี ที่จัด 6 - 8 มีนาคม 2561

หน่วยงานผู้จัด Tokai University, Takanawa Campus, Tokyo, Japan ซึ่งเป็นการประชุมวิชาการ

- ระดับนานาชาติ (International Conference) (บทความละ 4,000 บาท)
- ระดับชาติ (National Conference) (บทความละ 2,000 บาท)

ทั้งนี้ ข้าพเจ้าได้ยื่นขอรับเงินรางวัลการตีพิมพ์เผยแพร่ผลงานวิจัยนี้จากมหาวิทยาลัยขอนแก่นแล้ว ซึ่งได้รับการพิจารณา ดังนี้

- ไม่ได้รับอนุมัติ เงินรางวัลสำหรับบทความวิจัยนี้
- ได้รับอนุมัติ เงินรางวัลสำหรับบทความวิจัยนี้ เป็นเงิน บาท (.....) ซึ่งน้อยกว่าจำนวนเงินรางวัลตามประกาศคณะกรรมการศาสตร์ (ฉบับที่..... /2560) เรื่อง หลักเกณฑ์และแนวปฏิบัติในการสนับสนุนทุนและการใช้จ่ายเงินกองทุนสนับสนุนการวิจัยและบริการวิชาการ คณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยขอนแก่น เป็นเงิน บาท (.....)

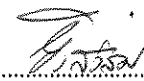
ในการนี้ ข้าพเจ้าจึงมีความประสงค์จะขออนุมัติเงินรางวัลการตีพิมพ์เผยแพร่ผลงานวิจัยดังกล่าว จากคณะกรรมการศาสตร์ สมทบเพิ่มเติมในส่วนที่เหลือ ดังนี้

- สำหรับข้าพเจ้า เป็นเงินรางวัลเต็มจำนวน กรณีเป็นผู้เขียนชื่อแรก (First Author) หรือ ผู้เขียนที่ติดต่อกับวารสาร (Corresponding Author)
- สำหรับข้าพเจ้า และคณะผู้ร่วมเขียนบทความวิจัย ตามสัดส่วนของจำนวนผู้เขียนบทความวิจัย ดังนี้
 - สำหรับข้าพเจ้า เป็นสัดส่วนร้อยละ เป็นเงิน บาท (.....)
 - สำหรับผู้ร่วมเขียนบทความวิจัย
 - นาย/นาง/นางสาวเป็นสัดส่วนร้อยละ เป็นเงิน บาท (.....)
 - นาย/นาง/นางสาวเป็นสัดส่วนร้อยละ เป็นเงิน บาท (.....)

รวมเป็นเงิน 4,000 บาท (สี่พันบาทถ้วน) โดยข้าพเจ้าได้แนบหลักฐานต่างๆ ตามประกาศหลักเกณฑ์ของคณะฯ มาด้วยแล้ว ดังนี้

- สำเนาบทความที่ได้รับการตีพิมพ์เผยแพร่ใน วารสาร / รายงานการประชุมวิชาการ ดังกล่าวข้างต้น พร้อม pdf file หรือ word file
- หน้าปก และหน้าสารบัญของ วารสาร / รายงานการประชุมวิชาการ ที่ปรากฏชื่อบทความวิจัยนี้
- หลักฐานการติดต่อกับวารสาร (กรณีผู้ขอรับเงินรางวัลเป็นผู้เขียนที่ติดต่อกับวารสาร)
- ใบสำคัญรับเงิน

จึงเรียนมาเพื่อโปรดพิจารณาอนุมัติ

(ลงชื่อ)  ผู้ขอเบิก
(นายยิ่งสวัสดิ์ ไชยะกุล)

2) เรียน คณะบดีคณะสถาปัตยกรรมศาสตร์ (ผ่านหัวหน้างานการเงิน บัญชี และพัสดุ คณะสถาปัตยกรรมศาสตร์)

คณะกรรมการวิจัยและบริการวิชาการ คณะสถาปัตยกรรมศาสตร์ ในคราวประชุม ครั้งที่ เมื่อวันที่ ได้พิจารณาแล้ว และมีมติเห็นสมควรอนุมัติให้เบิกจ่ายเงินรางวัลการตีพิมพ์เผยแพร่ผลงานวิจัยตามที่ผู้ขอเบิกเสนอ จากกองทุนสนับสนุนการวิจัยและบริการวิชาการ คณะสถาปัตยกรรมศาสตร์ เป็นเงิน บาท (.....)

จึงเรียนมาเพื่อโปรดพิจารณาอนุมัติ

(ลงชื่อ) ประธานกรรมการวิจัยและบริการวิชาการ
(.....)
...../...../.....

ใบสำคัญรับเงิน

วันที่ 15 มีนาคม 2561

ข้าพเจ้า นายยิ่งสวัสดิ์ ไชยะกุล ตำแหน่ง รองศาสตราจารย์
สังกัด คณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยขอนแก่น ตำบล ในเมือง อำเภอ เมือง จังหวัด
ขอนแก่น

ได้รับเงินจาก กรม มหาวิทยาลัยขอนแก่น สำนักงานคณะกรรมการอุดมศึกษา

ดังรายการต่อไปนี้

รายการ	จำนวนเงิน
1. ค่าตอบแทนการตีพิมพ์ผลงานวิจัยใน การประชุมวิชาการ ปี 2561 เรื่อง Illuminance standard for rural life context in Thailand ชื่อการประชุม The 8 th Lux Pacifica Life and Lighting หน้าที่ 14 -18	4,000.00
จำนวนเงิน - สี่พันบาทถ้วน.-	4,000.00

ลงชื่อ.....
(นายยิ่งสวัสดิ์ ไชยะกุล)



Yingsawad Chaiyakul <cyings@kku.ac.th>

Full Paper Submission

4 messages

Yingsawad Chaiyakul <cyings@kku.ac.th>

Tue, Nov 28, 2017 at 4:01 PM

To: Scientific committee Lux Pacifica 2018 <luxpacifica2018sc@gmail.com>

Dear Scientific Committee of LuxPacifica2018

Please find the attached files : Full manuscript titled "Illuminance standards for rural life contexts in Thailand" and signed copyright.

Sincerely yours,

Yingsawad

--

Assoc. Prof. Yingsawad Chaiyakul
Faculty of Architecture, Khon Kaen University
THAILAND 40002
Tel. +66 (0)85 025 7499

2 attachments



Full Paper Lighting standards for rural contexts in Thailand.docx
1184K



signed_TRANSFER OF COPYRIGHT AGREEMENT.pdf
87K

 Scientific committee Lux Pacifica 2018 <luxpacifica2018sc@gmail.com>

Wed, Nov 29, 2017 at 6:25 AM

To: Yingsawad Chaiyakul <cyings@kku.ac.th>

Dear Prof. Yingsawad Chaiyakul,

Thank you for sending your full paper for the Lux Pacifica conference.
We will inform you about the result of reviews when ready.

Kind regards,
[Quoted text hidden]

--

Lux Pacifica 2018 Scientific Committee

Naoyuki Oi & Shigeko Kitamura

 Scientific committee Lux Pacifica 2018 <luxpacifica2018sc@gmail.com>

Thu, Dec 21, 2017 at 3:24 PM

To: Yingsawad Chaiyakul <cyings@kku.ac.th>

Dear Prof. Yingsawad Chaiyakul,

Thank you for sending your full paper for the Lux Pacifica conference.

Your paper has now been reviewed by the scientific committee.
We are happy to inform you that your full paper for Lux Pacifica proceedings has been accepted.

Please note the following comments from the reviewers.
If you want to make corrections on your paper, please send us before 15 January 2018.

Comments

- Some of prepositions might not be correct.
- Line 4 of Discussion, "florescent" must be a typo of "fluorescent".

Kind regards,

2017-11-29 8:25 GMT+09:00 Scientific committee Lux Pacifica 2018
<luxpacificac2018sc@gmail.com>:
[Quoted text hidden]

Yingsawad Chaiyakul <cyings@kku.ac.th>
To: Scientific committee Lux Pacifica 2018 <luxpacificac2018sc@gmail.com>

Sun, Dec 24, 2017 at 12:27 AM

Dear Scientific committee,

Thank you for your kind consideration accepting my paper to present in Lux Pacifica. Please find the attached files, the revised paper as suggested by reviewers.

Moreover, if it is possible, I would like an acceptance letter for applying a supporting grant for this conference.

Sincerely yours,
Yingsawad Chaiyakul
[Quoted text hidden]

2 attachments



Full Paper Lighting standards for rural contexts in Thailand Corrected.docx
1184K



Full Paper Lighting standards for rural contexts in Thailand Corrected.pdf
430K



The 8th Lux Pacifica Program Book

Life and Lighting

March 6-8, 2018

Tokai University, Takanawa Campus, Tokyo, Japan

Instruction

1) Oral Session

Each presenter must make slides in Microsoft Powerpoint formats (.ppt and .pptx). We will prepare Microsoft Office 2016 working with Windows Laptop machines for presentation at the theaters. If a presenter uses his or her own computer for presentation, the computer must have a D-Sub connector. HDMI connectors are not installed into our LCD projectors. Slides must be stored in our laptop computer during a break just before a session at which presentation will be performed. Presenter will give talk for 12 min and discuss with the delegates for 2 min.

2) Poster Session

Each presenter must make a poster (less than 900 mm (W) x 1,800 mm (H)). He or she must put a poster on a board before 9:00 am and take out before 2:00 pm on the designated day (see this program). Presenter must put it on the board with a designated number.

3) Lecture

Each lecturer also must make and prepare slides as described above. He or she will discuss with delegates for the last 5 min.

4) Workshop

Presenters also must make and prepare slides as described above. Each presenter will give talk for 25 min. For the last 20 min, they will have a panel discussion on the stage and Q+A under the direction of the workshop chair.

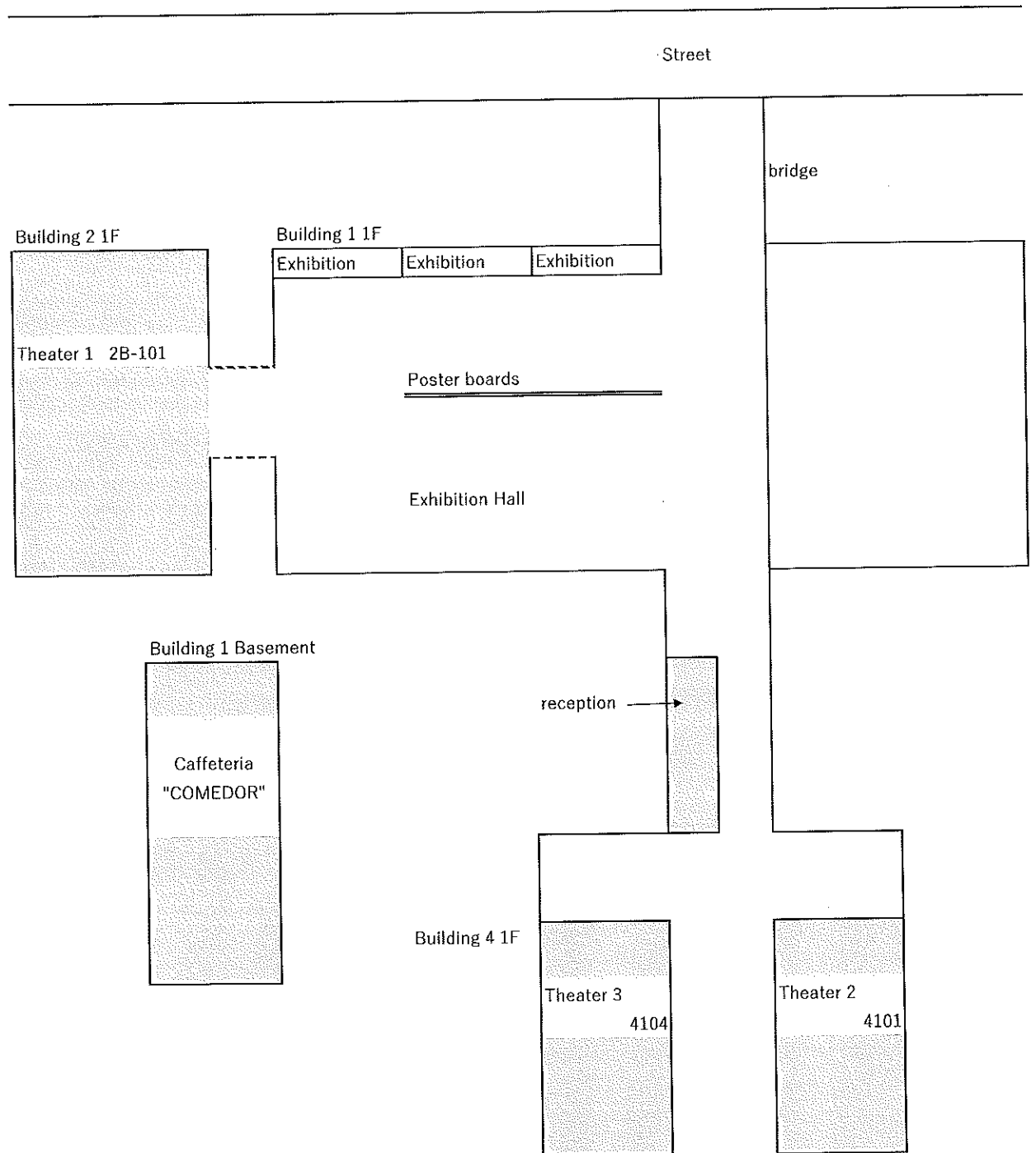
Wi-Fi service

Eduroam service is available in the buildings on Takanawa Campus. This service is provided to the delegates from the universities and colleges which belong to the Eduroam consortium. Please ask a person in charge of networking in your university or college about Eduroam service before joining the 8th Lux Pacifica conference. Other Wi-Fi services are not provided at the venue.

Conference kit

Conference kit (program book, name badge and others) will be provided at the reception since 8:30 am on March 6. If you have business card, please bring it to the venue. Your business card can be inserted into a badge. Otherwise, you must write your name on a piece of paper for a badge.

Schematic diagram of Takanawa campus



Day 1 (March 6)

Theater 1 (Building #2 2B-101)

Time of day		lecturer	affiliation	Chair	time
9:00-9:15	Opening Ceremony				
9:15-10:05	Kyenote speech	Prof. Warren Gordon Julian	University of Sydney	Australia	Dr. Acharawan Chutarat 50 min
	Lighting needs of the aged, partially sighted				
10:05-10:25	break				20 min
10:25-12:25	Symposium "Circadian Lighting: an Overview from Biology, Architecture, and Industry "	Prof. Motoharu Takao	Tokai University	Japan	Prof. Toshie Iwata 120 min (lecture: 25 min for each, Panel Discussion: 20 min)
		Current advancement in biological studies on circadian photoreception			
		Dr. Yumi Fukuda	Fukuoka Womens's University	Japan	
		A novel illumination system and its research application to human circadian rhythms			
		Dr. Yasuko Koga	Kyushu University	Japan	
		Designing Circadian Luminous Environment - From buildings to vehicles			
		Dr. Hiroki Noguchi	Panasonic Corp.	Japan	
	Expectations and Challenges in Circadian Lighting Application				
12:25-13:55	Lunch				90 min
13:55-14:35	Lecture #1	Prof. Tsung-Hsun Yang	National Central University	Taiwan	Prof. Yukio Akashi 40 min
	Comprehensive spectral model for LEDs and its optimization				
14:35-15:15	Lecture #2	Dr. Hiroataka Suzuki	Kobe University	Japan	Prof. Naoyuki Oi 40 min
	Geometric Design of Curved Surface for Lampshade				
15:15-15:55	Lecture #3	Ms. Chinami Emi Michaels	SciStories	United States	Prof. Motoharu Takao 40 min
	Present and Future of Digital Design Techniques for Illustrations Technology with Reference to Medical Illustration: from 2D to VR				

Day 2 (March 7)

Theater 2 (Building #4 4101) and Theater 3 (Building #4 4104)

Time of day	Oral Session #1	Session Chair	Oral Session #2	Session Chair	time
	Theater 2 (Building #4 4101)		Theater 3 (Building #4 4104)		
9:00-9:15	1	Prof. Toshie Iwata & Ms. Yuki Oe	9	Prof. Yukio Akashi & Prof. Yuki Akizuki	15 min
9:15-9:30	2		10		15 min
9:30-9:45	3		11		15 min
9:45-10:00	4		12		15 min
10:00-10:15	5		13		15 min
10:15-10:30	6		14		15 min
10:30-10:45	7		15		15 min
10:45-11:00	8		16		15 min
11:00-11:20	break				20 min
11:20-12:20	Poster Session #1 (Exhibition Hall) Chair. Dr. Daisuke Ito				60 min
12:20-13:50	lunch				90 min
	Oral Session #3	Prof. Motoharu Takao & Dr. Takako Kimura-Minoda	Oral Session #4	Prof. Naoyuki Oi & Dr. Acharawan Chutarat	
13:50-14:05	17		25		15 min
14:05-14:20	18		26		15 min
14:20-14:35	19		27		15 min
14:35-14:50	20		28		15 min
14:50-15:05	21		29		15 min
15:05-15:20	22		30		15 min
15:20-15:35	23		31		15 min
15:35-15:50	24	32	15 min		
15:50-16:10	break				20 min
	Oral Session #5	Dr. Yasuko Koga & Dr. Chanyaporn Chutamara	Oral Session #6	Dr. Hiroki Noguchi & Dr. Daisuke Ito	
16:10-16:25	33		41		15 min
16:25-16:40	34		42		15 min
16:40-16:55	35		43		15 min
17:10-17:25	36		44		15 min
17:25-17:40	37		45		15 min
17:40-17:55	38		46		15 min
17:55-18:10	39		47		15 min
18:10-18:25	40	48	15 min		
18:25-18:40	break				15 min
18:40-20:40	dinner (Caffeteria "Comedor")				120 min

Day 2 (March 7)

Theater 2 (Building #4 4101): Oral Session #1, #3 & #5

Session #	number	Name	Affiliation	Country	
1	1	Prof. Keizo Shinomori	Kochi University of Technology	Japan	
		Possible influences on road safety by senescent deterioration in vision estimated by combinations of known models			
1	2	Dr. Jaeyoung Heo	The University of Tokyo	Republic of Korea	
		A STUDY ON THE EFFECTS OF LED LIGHTING ON RAILWAY STATION ON USER'S PSYCHOLOGY			
1	3	Dr. Naoyuki Oi	Kyushu University	Japan	
		Impressions and Luminance Distribution of Outdoor Illumination for Winter Events			
1	4	Prof. Yingsawad Chaiyakul	Faculty of Architecture, Khon Kaen University, Thailand	Thailand	
		Illuminance standards for rural life contexts in Thailand			
1	5	Mr. Kazuki Harada	Panasonic Corporation	Japan	
		Color Identification and Impression Evaluation in Middle-Aged Adults and Elderly under Lightings			
1	6	Mr. Nozomi Honjo	Ochanomizu university	Japan	
		Research on pleasant darkness range in a restaurant : considering age factor			
1	7	Dr. Takako Kimura-Minoda	Stanley Electric Co., Ltd.	Japan	
		Discomfort glare for red LEDs with various luminance distribution			
1	8	Prof. Motoharu Takao	Tokai University	Japan	
		The effect of ambient lighting on visual motion prediction			
Session #	number	Title	Name	Affiliation	Country
3	17	Mr. Toshihide	Iwanaga	Tokyo Metropolitan Industrial Technology Research Institute	Japan
		Evaluation of color appearance of LED lighting by principal component analysis and prediction method by color appearance model			
3	18	Prof. Toshie	Iwata	Tokai University	Japan
		EFFECTS OF VIEWS FROM THE WINDOWS ON DISCOMFORT GLARE EVALUATION			
3	19	Mr. Kazuki	Miyashita	Kyushu University	Japan
		Comparative Assessment of Colour Rendering Properties Between Violet-LED and Blue-LED White Light Sources			
3	20	Ms. Yuki	Oe	Nara Women's University	Japan
		Suggestion of the Comfortable Lighting in Consideration for Age- Examination to adapt the result of the experimental room for a residential space-			
3	21	Ms. Yuki	Oe	Nara Women's University	Japan
		Suggestion of the Comfortable Lighting in Consideration for Age -Difference on the Evaluation for a Change of Lighting Environment (Case of Young People)-			
3	22	Ms. Ayako	Taga	Nara Women's University	Japan
		Suggestion of the Comfortable Lighting in Consideration for Age -The Examination of an Indoor Impression Evaluation for Life Activities-			
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The 8th Lux Pacifica Life and Lighting

Proceedings

March 6-8, 2018

Tokai University, Takanawa Campus, Tokyo, Japan

PREFACE

This book is a proceedings of the 8th Lux Pacifica (Tokyo 2018). This book includes only the full papers reviewed and accepted by the scientific committee of the 8th Lux Pacifica. You can find the abstracts of all presentations in the abstract book of the 8th Lux Pacifica.

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Illuminance standards for rural life contexts in Thailand

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ABSTRACT

This work investigates on lighting standard in Thailand and its compliance to the rural life contexts. An initial study by field surveys in rural villages in Khon Kaen was conducted to point out the contrast between light requirements (suggested and legalized) and actual practice. Currently the standards of lighting in Thailand are suggested by Illumination Engineering Association of Thailand (TIEA) and related government regulations. Nevertheless, some visual tasks have not yet covered within this existing document. Consequently, IES and CIBSE recommendations are usually adopted in lighting practice. Recent study in Thailand additionally suggested that required illuminance for different visual tasks for Thai people is possibly different from international levels. This work is another aspect to raise an issue that current recommendation may not comply with actual practice in the rural contexts where some other uncontrolled non-visual factors have effects on visual tasks.

Amphor Chonnabot and Bann Nong-Ya-Plong are the two villages famous in silk weaving in Khon Kaen, selected as sites for data collection through a convenience sampling technique. The silk production in the villages has extended through many generations but the process has been not changed chiefly. Nowadays not only villagers weave their silk at home and some people are preferred to work with friends at a community weaving factory. A lux meter, Minolta T-10A and CL-500A were used to measure existing light levels on task surfaces following standard industry procedures at the community weaving factory and villager home. The field survey measurement values were then compared to the current Thai lighting standards. The lighting techniques were also observed at different production processes such as silk weaving, warping, spinning, twisting and dyeing areas. The results show that the illuminance levels are various and generally do not comply with the standards. The findings address that extra factors may be necessitated for altering the amount of light recommended for different human backgrounds, and that task daylighting recommendations could be adopted into current standards used in Thailand.

Keywords: Illuminance standards, Rural contexts, Silk weaving factory

INTRODUCTION

This work explored illuminance compliance in rural contexts with lighting standards. Amphor Chonnabot and Bann Nong-Ya-Plong are the two villages famous in silk weaving in Khon Kaen selected as sites for data collection through a convenience sampling technique. The visual tasks in the silk producing process were investigated to determine the existing lighting condition and current lighting practice. The lighting standards put into practice in Thailand are international recommendations suggested by IES(IESNA 2003) and CIBSE(CIBSE 2002). Thai legislations related to lighting define into the minimum requirement to ensure enough light to perform tasks. However, lighting aspects of building is taken into account when building is cautiously designed by professional. Buildings in rural contexts in Thailand are commonly built by workers in their own community. Lighting aspect is little known in their everyday practice. Therefore, the main goal of this study is to point out the existing lighting circumstance and compliance the standards.

METHODS

First survey in the silk village Amphor Chonnabot was carried out in September 2016. A succession of survey in Bann Nong-Ya-Plong was in June 2017. Observations were used in the field surveys to record the tool setting in in silk weaving procedure. Illuminance readings were done with two Konica Minolta Illuminance meters, T-10A and CL-500A to measure existing light levels in lux (lx) on horizontal task surfaces following standard industry procedures. The illuminance meter was different in each survey period because of the availability of the tool. The

resulting light levels were compared to international standards and Thai lighting related legislation. Compositional lighting techniques in situ through visual examination were also identified. At each village, the study focused in a weaving community factory and homemade-silk weaving areas in villager houses.

RESULTS

Recommended illuminance (CIBSE 2002, IESNA 2003) in silk making process is within the illuminance range from of 500 to 1,000 lx. The legislation (Minister of Interior by advice of the Building Control Committee 1994, Ministry of Labour and Social Welfare 2006) related in Thailand for the same visual task is 200 lx for space in factory and 400 and 800 lx for workplace in textile industry. Thus a minimum light for the main weaving process is 400 lx to meet the legislation value. The measured illuminance at the work plane on the loom shows in Table 1. The sky conditions during the field survey in both villages were partly cloudy sky with strong sunlight. The illuminance measured at the actual context varies with loom placement and time.

Comparing the illuminance in the two community factories “*Boon-Mee Mai Thai*” Factory in Figure 1(a) and “*Bann Nong-Ya-Plong silk weaving learning center*” Figure 2(a) and 2(b), the working area is under non air conditioned space in an enclosed building and without wall building consecutively. Daylight is the main light source. The first factory is installed with task lighting over the weaving device. In the learning center building, no artificial light is provided for the visual task.

For home-made silk working areas, villagers set the loom at their convenient space on the ground floor. Typical country house is built to keep a space underneath for multifunction for family. In consequence the loom and other silk weaving work area are in this space in shown in Figure 1(b) - 1(d). However, some house with full main functions on the ground floor, the weaving area will be an extension space adjacent to the house as shown in Figure 2(c) Measure illuminance values were done in Figure 2(d) and lighting technique was recorded shown in Table 1.

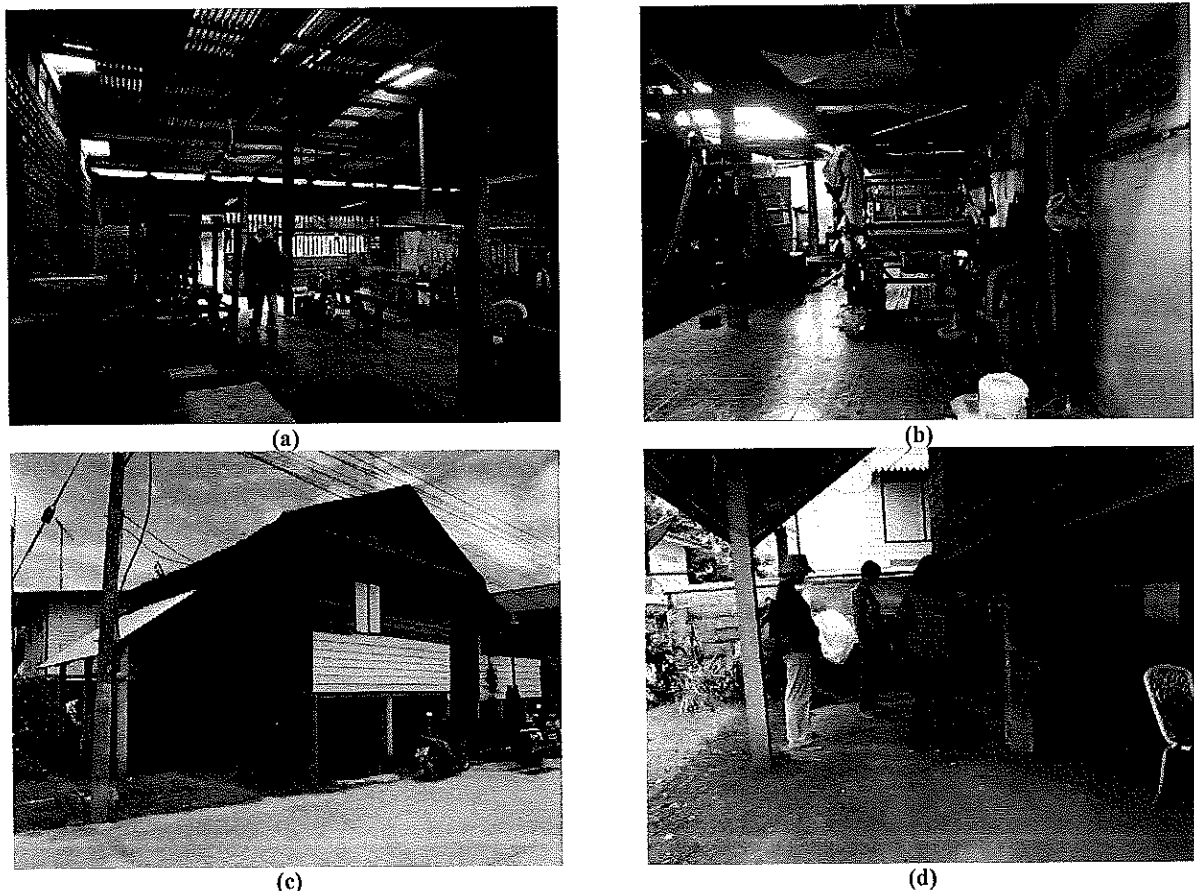


Figure 1 Amphor Chonnabot silk village: (a) “*Boon-Mee Mai Thai*” Factory; (b) loom in the villager house with a batten fluorescent lamp; (c) daytime working space underneath the house; and (d) visual task using daylight as a main source

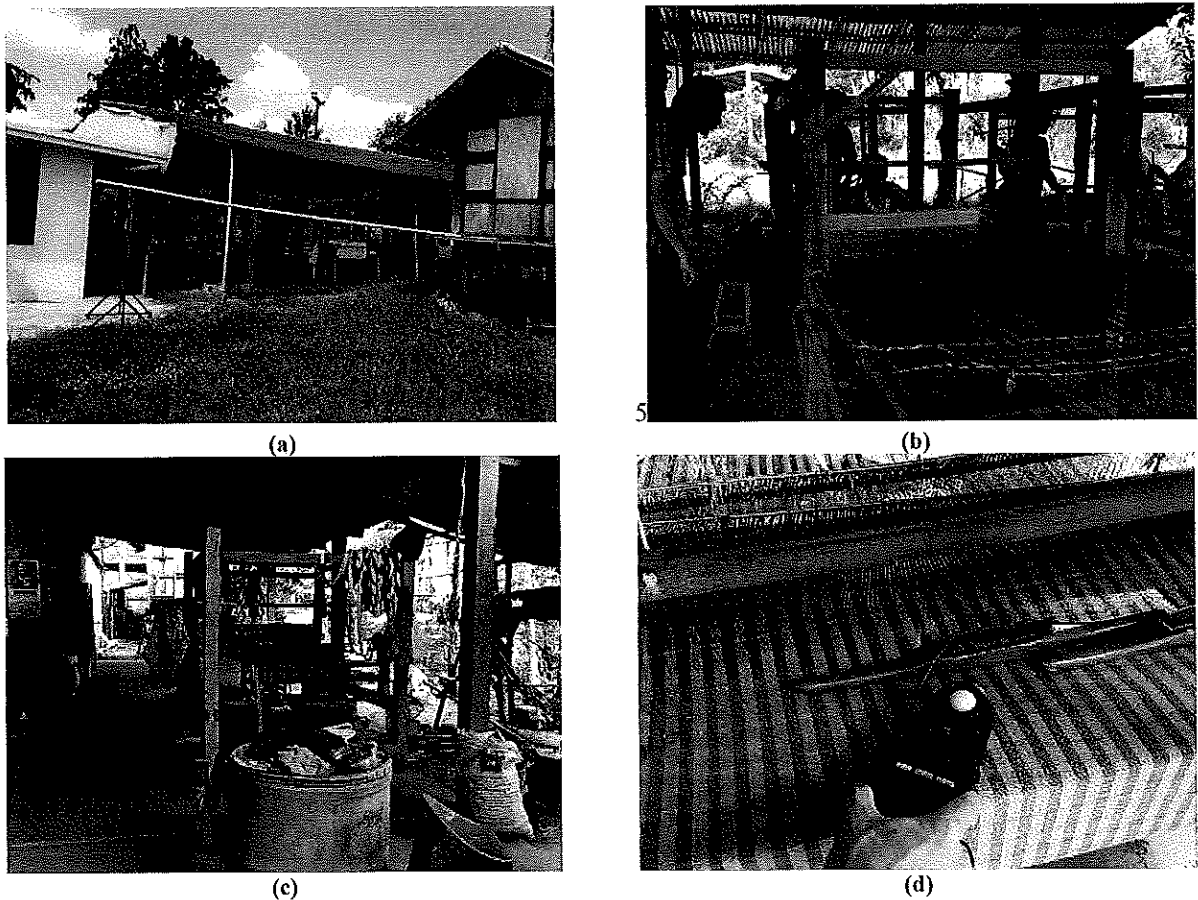


Figure 2 Bann Nong-Ya-Plong silk village: (a) Silk weaving learning center; (b) looms at the factory; (c) at villager home with silk weaving area without artificial lighting; and (d) illuminance reading at the visual task level with Minolta T-10.

Table 1. Measured illuminance during the field survey in Amphor Chonnabot

Area	Illuminance range (lux)	Visual tasks	Main Lighting techniques
“Boon-Mee Mai Thai” Factory	96/ 100/ 103/ 169/173/ 279/ 308 ^a	Weaving/ Silk spinning/ Tying and dyeing	Top daylighting from translucent roof tiles and artificial lighting over the task areas
House no.1	1,113	Tying and dyeing	Using daylight as a main light source by placing loom near house parameter/ no luminaire install on the area
House no.2	304	Weaving	Daylighting is not accessible in the working zone/ luminaire is installed for task lighting
House no.3	1,645	Weaving	Loom is located on the open space under the upper floor / A fluorescent tube luminaire is installed
House no.4	258	Weaving	Loom is located on the open space under the upper floor / A fluorescent tube luminaire is installed

^a Measured illuminance at various task the silk weaving process in the factory

Table 2. Measured illuminance during the field survey in Bann Nong-Ya-Plong

Survey points	Illuminance range (lux)	Visual tasks	Main Lighting techniques
“Bann Nong-Ya-Plong Community Learning Center” Factory	273/ 423/ 444/ 447/ 483/ 502/ 569/ 573/ 688/ 1,557 ^b	Weaving	Using daylight alone as the main light source/ No artificial light
House no.1	90	Weaving	Space adjacent to the house/ Using daylight alone as the main light source/ No artificial light
House no.2	115	Weaving	Weaving area adjacent to the house / Using daylight alone as the main light source/ No artificial light
House no.3	203	Weaving	Space under the house / Using daylight alone as the main light source/ No artificial light

^b Measured illuminance at various visual tasks the silk weaving process in the factory

DISCUSSION

The main light source for weaving tasks in the two villages is daylight. Although there is a luminaire over the task zone in some situations, it is not turned on during the daytime. The configuration of building and loom placement depends on two criteria which are daylight and ventilation. The work hours depend upon daylight sufficient over the task. A type of luminaire used in every survey case is T8 fluorescent batten suspended. The levels of light are various depend upon the placements of the weaving process areas and looms in the building. The illuminance levels in the actual workplace in the range of 90 -1,645 lx. Most of the reading values as shown in Table 1 are below 400 lx, a minimum legitimate requirement. This minimum illumination level ensures for occupational health and safety in the workplace, where operation line may also be systematically controlled. Moreover, industry goal is to provide enough light for task performance in factory process. Most of measured light levels are also below the suggested levels for the silk making process.

The procedure and all device for silk weaving task in the selected villages have not been changed much from the past. The loom and other process are found using the same tool and life style of villagers have not much changed. In rural context influence factors on lighting such as economic border and life style stress out from the field surveys in the two villages. In Thailand there is only legislation standards for lighting that regulate buildings. Lighting recommendation is not rarely present and widely accepted by professional. The information from this work suggests that interesting issues include difference to the international standards in rural context. Moreover, daylighting is common when people in the rural perform tasks as influence issues to lighting are cost, human preferences and behavior. This should be include in the standards to reflect actual need in proper lighting that tailors to life and context of the country where country people still live in their own life style.

REFERENCES

- CIBSE (2002). Code for Lighting. London, Butterworth Heinemann.
- IESNA, Ed. (2003). IESNA Lighting Ready Reference. RR-03. New York, IESNA.
- Minister of Interior by advice of the Building Control Committee (1994). Ministerial Regulation No. 33 (B.E. 2535) issued by virtue of the Building Control Act, B.E. 2522 33. Ministry of Interior.
- Ministry of Labour and Social Welfare (2006). Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in Relation to Heat, Light and Noise B.E. 2549 (A.D.2006). Ministry of Labour and Social Welfare.