



33/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
香港灣仔告士打道5號稅務大樓33樓

ACE Paper 1/2016

For information by circulation

Report of the Charter on External Lighting

PURPOSE

This paper briefs Members on the Charter on External Lighting (the Charter) and its implementation progress.

BACKGROUND

2. As reported at the meeting of the Advisory Council on the Environment (ACE) on 8 June 2015, the Government set up the Task Force on External Lighting (Task Force) in August 2011 to advise the appropriate strategy and measures to tackle nuisance and energy wastage problems caused by external lighting.

3. The Task Force published in April 2015 its report to the Government to recommend a multi-pronged approach to tackle the problems caused by external lighting, including (a) the introduction of a Charter to encourage owners of and responsible persons for external lighting installations of decorative, promotional and advertising purposes which affect the outdoor environment to switch off such lighting installations during the preset time of 11 p.m. to 7 a.m. or midnight to 7 a.m.; and (b) the re-launch of the Guidelines on Industry Best Practices for External Lighting Installations (“the Guidelines”) to promote good practices in the design, installation and operation of external lighting installations.

4. The Government has accepted the Task Force’s recommendations and will formally launch the Charter in January 2016, and has been appealing to organisations for their support for the Guidelines.

GOVERNMENT TO TAKE THE LEAD

5. Apart from encouraging the public and private sector to sign up to the Charter, the Government is taking the lead to tackle the problem of nuisance and energy wastage caused by external lighting. We have promulgated guidelines which require all Government departments to switch off external lighting of decorative, promotional and advertising purposes at 11 p.m. at all properties owned or managed by the Government. Government departments responsible for the management of Government buildings or facilities will also observe the Guidelines when planning for or managing their external lighting installations.

6. To follow up on Task Force's recommendation to launch the Charter, we set up a Working Group on the Promotion of the Charter on External Lighting (the Working Group) with members drawn from different sectors including the advertising, catering, hotel, property management and retail industries as well as District Councils. The Working Group formulates the details of the Charter, and promotes the Charter among owners or management of external lighting installations. The Task Force's recommendations and the views of the Working Group have been taken into account in the process of drawing up the detailed provisions of the Charter.

KEY FEATURES OF THE CHARTER

7. The Charter will take effect in April 2016. It has been drawn up in accordance to the recommendations of the Task Force and has the following key features—

- (a) **Purpose:** It seeks to minimise light nuisance and energy wastage;
- (b) **Target:** Those invited to sign up to the Charter include owners of and responsible persons for external lighting installations, such as property management companies; owners / managers of advertising signs; and hotels, shopping malls, shops, restaurants and public bodies and organisations with external lighting installations or signboards;
- (c) **Preset time:** Participating organisations can choose to switch off external lighting during the preset time of 11 p.m. to 7 a.m. for Platinum Award or from midnight to 7 a.m. for Gold Award;
- (d) **Scope of Switch-off Requirement:** The following external lighting

should be switched off at the preset time:

- (i) Lighting installations of decorative, promotional or advertising purposes;
 - (ii) lighting installations that are intended for illumination of the outdoor environment, regardless of whether the lighting installations are interior or exterior, should be switched off during the preset time;
 - (iii) lighting installations of promotional or advertising purposes, including shop signs and advertising signs (e.g. signs illuminated by spotlights and light box signs, etc.) and outdoor video walls, etc.;
 - (iv) decorative lighting, including lighting for facades and features, etc.;
 - (v) signage on the first floor and above of a building, including signs and advertising signboards on the top of a building. Even if shops (regardless of whether these shops are located on the ground floor or the first floor or above of a building) are still in operation, external lighting on first floor and above should be switched off at the preset time; and
 - (vi) any non-static lighting for decorative, promotional or advertising purposes (e.g. non-static signs and video walls, etc.) should be switched off after 11 p.m.. If the non-static sign is a shop-front sign on the ground floor, and the shop concerned is still in operation at the preset time, the non-static sign should be turned to static mode after 11 p.m.
- (e) **Exemptions:** The following external lighting installations are exempted from the switched-off requirement –
- (i) Shop-front signs of shops on the ground floor which remain open during the preset time. The shop-front signs should not be operated in non-static mode. If the signs are located on the first floor or above of a building, they should be switched off at the preset time even if the ground floor shops are still in operation;
 - (ii) festive lightings of decorative purposes, including static and non-static lightings, can be switched on at the preset time three

weeks before the respective public holidays of Christmas, New Year and Lunar New Year until the morning of the seventh day after the holidays. For 2016-17, the exemption period will last from 11 p.m. on 4 December 2016 to 7 a.m. on 7 February 2017. However, external lighting installations of promotional or advertising purposes only should be switched off during the preset time; and

- (iii) due to safety and other operational considerations, external lighting installations for security, safety and operational purposes (e.g. street lighting, lighting at airport and container port, construction sites, etc.) do not need to be switched off during the preset time. Hence, it is not necessary for the owners and management of such external lighting installations to sign up to the Charter. Yet, the organisations concerned are encouraged to observe the Guidelines on Industry Best Practices for External Lighting Installations (the Guidelines) at Annex to minimise the nuisance caused by such lighting and the energy consumption.

IMPLEMENTATION PROGRESS

8. The Government will promote the Charter and give recognition to the Charter signatories, and organise a series of publicity programmes to raise public awareness of problems associated with external lighting –

- (a) **Recruitment of Signatories:** Before we formally launch the Charter, we have appealed to public bodies for their support and invite them to participate in the Charter. We have also enlisted the assistance of relevant trade associations, chambers of commerce, professional institutions, property developers, lighting design professionals, the property/facility management sector and the District Councils, etc. in encouraging owners of external lighting installations to sign up to the Charter. As at 8 January 2016, near 1000 organisations / shops / properties have agreed to sign up to the Charter. After the formal launching of the Charter, we will keep up the momentum and invite more organisations to sign up to the Charter. We will also actively identify external lighting installations in areas with higher concentration of external lighting installations and invite the concerned owners or responsible persons to join the Charter;

- (b) **Launching Ceremony:** To formally launch the Charter, ENB will organise a launching ceremony on 11 January 2016. Organisations or companies that have agreed to sign up to the Charter will be invited to the ceremony. Some of their representatives will be invited to share their experience in managing their external lighting installations to minimise light nuisance and energy wastage;
- (c) **Publicity:** TV and radio Announcements in the Public Interest will be rolled out on 11 January to encourage the switching off of external lighting installations to minimise light nuisance and energy wastage. We will also publish the details of the Charter on the website of Environment Bureau (http://www.enb.gov.hk/external_lighting/). The list of signatories will also be published in newspapers and on the webpage after April 2016. Stickers and certificates will be provided to signatories for display at their properties;
- (d) **Signing Ceremony:** To further promote the Charter, a signing ceremony will be organised in April 2016. The names of the signatories will also be published on newspapers and relevant Government websites to acknowledge their participation in the Charter. Stickers and certificates will be provided to signatories for display at their properties; and
- (e) **Award Ceremonies:** We plan to hold award ceremonies in 2017 and beyond to express our appreciation for the efforts made by signatories to comply with the switch-off requirement under the Charter.

9. As to the promotion of the Guidelines, we will continue to appeal to relevant professional associations, trade bodies and organisations to adopt the good practices in the Guidelines. The Government will also host seminars to promote the trades' awareness and understanding of the Guidelines.

WAY FORWARD

10. The Government will continue to invite organisations in the public and the private sectors to sign up to the Charter, and to enhance public awareness of the issue of external lighting as an ongoing exercise. We will also report to the ACE on the implementation of the Charter and other administrative measures recommended by the Task Force in the second quarter of 2016.

ADVICE SOUGHT

11. Members are invited to note the implementation of the Charter.

Environment Bureau

January 2016

Guidelines on Industry Best Practices for External Lighting Installations

The guidelines below suggest some best practices on external lighting installations that Government departments and the private sector should observe.

Introduction

1. External lighting in Hong Kong exist in many different forms and some typical examples include signs (either internally illuminated or externally illuminated), lighting for facades and features, lighting outside buildings (including those for shops), lighting for sports fields and playgrounds, external video structures (e.g. video walls, display panel).
2. The guidelines in this document aim to outline some general good practices on design, installation and operation of external lighting for the reference of lighting designers, contractors, owners and users with a view to minimising the adverse impacts arising from external lighting.
3. The guidelines are not intended to cover road lighting maintained by Highways Departments (HyD), which should comply with the Public Lighting Design Manual issued by HyD. In addition, the guidelines are not intended to cover traffic signals, variable message signs, and other traffic/transport facilities with lighting installation managed by the Transport Department (TD), which should comply with relevant traffic regulations or design guidelines issued by TD.
4. For easy reference, the guidelines are grouped under the following sub-headings: operating hours for lighting, automatic controls for lighting, light nuisance control measures, energy efficiency measures, lighting project design planning, glare prevention to road users, and advertising signs.
5. The good practices stipulated in this document are not exhaustive. Relevant professionals, such as experienced practitioners and consultants in the lighting field, should be consulted for further advice if necessary.

Operating hours for lighting

6. Limiting the use of external lighting after a specified time at night could reduce the possibility of light nuisance and energy consumption and in turn foster a good living environment for everyone. It is advisable to :
 - (a) Switch off the external lighting when not needed or after business hours.
 - (b) Switch off the external lighting after certain time at night (say, after 11p.m. as recommended by International Commission on Illumination (CIE))¹ .
 - (c) Maintain only essential lighting (e.g. lighting for safety and security) at the acceptable level as required.
 - (d) Feature lighting serve to enhance a particular feature/building/structure may be subject to even more stringent control as to their lit time.

Automatic controls for lighting

7. Automatic controls could help reduce adverse impacts of external lighting by optimising the use of the external lighting. Examples of such measures include :
 - (a) Incorporate automatic control (e.g. timer switch) to switch off the external lighting when not needed or after business hours, or when concerned premises are not in use, or after certain time at night (say, 11p.m. as recommended by CIE).
 - (b) Incorporate automatic control (e.g. photo-sensor for maximising daylight utilisation) to switch on the external lighting only when necessary.
 - (c) Incorporate occupancy sensor control (e.g. motion sensor or passive infrared sensor) to switch on the external lighting from off or dimmed state where applicable.

¹ International Commission on Illumination (CIE), an international professional body on light and lighting, suggests curfew at 11p.m., unless otherwise specified, after which stricter requirement for control of obtrusive light will apply.

Light nuisance control measures

8. Measures to reduce light nuisance impacts (e.g. light overspill, light trespass, glare and sky glow) arising from external lighting include :
 - (a) Avoid over-illumination of signs, facades, shop fronts, video walls and facilities with lighting. Over-illumination will increase possibility of light nuisance.
 - (b) Position and aim the lighting properly to avoid overspill of light to outside the area being lit up.
 - (c) For lighting up vertical structures (e.g. signs & façade), direct the beam to the structures and avoid overspill of light.
 - (d) Use lighting with appropriate shields, baffles, louvers and cut-off features to prevent light overspill to nearby residence and into the sky, and glare from the light source. Where necessary, consider to use luminaires with appropriate cut-off classification. To avoid imposing additional wind load which will affect the structure of the existing lighting columns and foundation, please consult relevant professionals in the design of shields, baffles, louvers, etc. for retrofit works.
 - (e) Switch off the lighting when it is not operationally required or dim down the lighting when a high illumination level is not essential (e.g. after business hours and where the lighting devices are not for security purposes).
 - (f) Avoid using video walls or signs with flickering, colour changing or movement effect in cases where the video walls or signs are facing directly at residents (e.g. when the lighting device and residential premises are on the opposite sides of a road or street). Where unavoidable, reduce the video wall or sign illuminance, the period of operation and/or the flickering rate.
 - (g) For signs with light emitting diodes (LEDs), use suitable type of LEDs (e.g. LEDs with baffles, louvres or optic diffusers to control light distribution) to reduce sign luminance and light overspill and to prevent glare from direct view of the light source.

- (h) Avoid directing light at glass curtain wall, shiny shop front display panel, or light colour fabric materials (e.g. used in shade structures in parks, amphitheatres or piazzas) etc. to prevent light overspill and nuisances caused by reflection of light.

Energy efficiency measures

9. Measures to enhance energy conservation and energy efficiency of external lighting include :

- (a) Avoid over-illumination of signs, facades, shop fronts and facilities with lighting. Over-illumination will consume more lighting energy.
- (b) Use more energy efficient lighting equipment, e.g. T5 fluorescent light, compact fluorescent lamp (CFL), ceramic metal halide (CMH) lamp, metal halide lamp, LED lamp, and electronic ballast.
- (c) Dim down lighting as applicable and switch off lighting when it is not needed (e.g. after business hours) by automatic or manual control.
- (d) Incorporate sectional controls such that the sections of lighting not operationally required are switched off or dimmed down as appropriate.
- (e) Clean up the external lighting (as part of regular maintenance) to reduce lumen depreciation due to dusts and wastes on the lighting. Adequate provision for easy access and/or appropriate facilities should be allowed to facilitate regular cleaning of external lighting.

Lighting project design planning

10. Good design planning for an external lighting project could help prevent occurrence of adverse impacts from the lighting installations. Design and planning measures include :

- (a) Assess the impacts of external lighting as part of the lighting design development process before firming up the lighting design for installation. Some aspects to be considered may

include critical or sensitive locations² that the lighting may affect, ambient brightness condition, orientation and positioning of external lighting, types of external lighting, lighting energy consumption, and importance of light nuisance impacts.

- (b) Review whether the external lighting will have the possibility of shining outside the area it intends to light up, affecting neighbourhood or the sky. If so, refine the lighting design, consider re-positioning the lightings and adjusting the mounting height and the aiming angles, and choose luminaires with suitable light distribution characteristics (e.g. light pattern, beam spread, cut-off angle) or light control devices (e.g. shields and baffles) as appropriate.
- (c) For floodlighting, ensure the beam angle of the lighting from the vertical is not excessive and the lighting is fitted with shields and cut-off features to control glare, and if possible, use lower intensity lamps to reduce glare from the light source.
- (d) Whenever there is residence nearby, use lighting with appropriate shields, baffles, louvers and cut-off features to prevent light overspill, and glare from the light source. Where necessary, consider using luminaires with appropriate cut-off classification.
- (e) For sports lighting, use luminaires with double asymmetric beams as appropriate so that the front glazing is kept nearly parallel to the surface being lit to minimise overspill light. The light output should be adjustable to different illumination levels to meet different purposes (e.g. training/competitions). For floodlighting provision, adverse effects to nearby residents due to light nuisance such as glare should be thoroughly assessed before the installation of the lighting and suitable measures should be taken to minimise the impact to a level acceptable to nearby residents. Consideration should be given to take into account the physical environment of the facilities to be provided with floodlighting with a view to reducing the light nuisance as well as to provide suitable light-breaker to reduce the glare if necessary. Special care should also be taken to avoid over-concentrating the floodlights on a few lighting

² Such as habitable room within a dwelling that is normally occupied by people for extended periods, especially at night, e.g. bedroom, study. Dwelling refers to building in which people normally reside, especially during the hours of darkness, e.g. residential building, hotel, hospital.

towers/columns which could cause light nuisance or glare problems to nearby residents.

Prevention of glare to road users

11. Glare from external lighting may affect road users resulting in safety concerns. Measures to reduce such glare impact include :
 - (a) Ensure the external lighting is appropriately positioned, aimed or shielded so that illumination of nearby roads will not be adversely affected.
 - (b) Ensure appropriate type of lighting is used (e.g. lighting with suitable light distribution pattern, or appropriate cut-off classification) to reduce glare impact on road users.

Advertising signs

12. Advertising signs should also comply with the advice and guidance on safety, health and related issues stipulated in the *Practice Notes for Authorized Persons and Registered Structural Engineers APP-126* and the *Guide on Erection & Maintenance of Advertising Signs* issued by Buildings Department.

Environment Bureau
Environmental Protection Department
Electrical and Mechanical Services Department
June 2015