



STAFF REPORT ACTION REQUIRED

Motion Controlled Apartment Building Corridor Lighting

Date:	July 29, 2010
To:	Licensing and Standards Committee
From:	Executive Director, Municipal Licensing and Standards
Wards:	All
Reference Number:	P:\2010\Cluster B\MLS\Ls10025

SUMMARY

The purpose of this report is to recommend an amendment to Toronto Municipal Code Chapter 629, Property Standards, § 629-36 to permit owners of existing multiple residential apartment buildings to install and use motion controlled switches for the operation of corridor and garage lighting and thereby realize energy savings.

This would bring the requirements of Toronto Municipal Code Chapter 629, more in line with the new provisions the Ontario Building Code, Section 12.2.2.1, as they relate to energy conservation for new construction.

RECOMMENDATIONS

The Executive Director, Municipal Licensing and Standards recommends that:

1. the City of Toronto Municipal Code Chapter 629, Property Standards, be amended as per Appendix “A” attached to this report; and
2. the City Solicitor prepare the necessary bills to give effect to the recommendations contained in this report.

Financial Impact

There are no financial impacts beyond what has already been approved in the current year's budget.

DECISION HISTORY

In December 2008, the Executive Director, Municipal Licensing and Standards was approached by representatives of the apartment building industry, with a request that, as the Ontario Building Code now permits new construction to include motion controlled lighting in apartment building common areas, the Toronto Municipal Code, Chapter 629, Property Standards, which is the standard to which apartment buildings have to be maintained, be amended to also permit motion controlled lighting.

A report, dated April 20, 2009, (see the link below) was tabled before the Licensing and Standards Committee at its meeting of May 7, 2009.

<http://www.toronto.ca/legdocs/mmis/2009/ls/bgrd/backgroundfile-20664.pdf>

The Committee referred the report back to staff with the following direction:

1. referred the report (April 20, 2009) on Motion Controlled Apartment Building Corridor Lighting back to the Executive Director, Municipal Licensing and Standards, with a request to:
 - a. consult further with interested parties, such as the Greater Toronto Apartment Association;
 - b. consider in reviewing the minimum lighting in hallways, that the minimum lighting level be set at 10 lux with sufficient detection to detect motion at all doorways;
 - c. report further on areas such as garbage and locker rooms; and
2. requested that the report be forwarded to the Tenant Defence Subcommittee for their information.

A further report dated October 19, 2009, (see the link below) was tabled before the Licensing and Standards Committee at its meeting of November 5, 2009.

<http://www.toronto.ca/legdocs/mmis/2009/ls/bgrd/backgroundfile-24444.pdf>

The Licensing and Standards Committee directed that the Executive Director, Municipal Licensing and Standards report directly to City Council on:

- a. a review by Municipal Licensing and Standards Division of:

- i. Section H (1) of the proposed amendments to Toronto Municipal Code, Chapter 629, Property Standards, to address the issue of there being "no null zones";
 - ii. Section H(3)(b) of the proposed amendments to Toronto Municipal Code, Chapter 629, Property Standards, to address the issue of the definition of "minimum average level";
- b. the requirement for a minimum lighting level of 10 lux for safety purposes; and
 - c. suggested amendments raised in communications LS25.3.1 to LS25.3.4 and deputations heard at the meeting.

City Council at its meeting of November 30, 2009, considered a report dated November 23, 2009, (see the link below) from the Executive Director, Municipal Licensing and Standards.

<http://www.toronto.ca/legdocs/mmis/2009/cc/bgrd/backgroundfile-25418.pdf>

City Council adopted, as amended, the following recommendation contained in the report:

- 1. City Council request that the Province amend Ontario Building Code Articles 12.2.2.1 and 12.3.4.9., as they relate to motion sensor controlled lighting in multi-residential buildings (exceeding three storeys or having a building area over 600 square metres) to require:
 - a. That emergency lighting levels of 10 lux be maintained in the common areas of a multi-residential building, when the lighting system is dormant and where motion sensor controlled lighting is used.
 - b. That all zones/areas of an underground garage of a multi-residential building, be fully lighted when occupied, for safety purposes (where motion sensor controlled lighting is used in a particular zone); and
 - c. Emergency lighting levels of 10 lux, be maintained in the underground garage of a multi-residential building, to address the issue of "no null zones", when the motion sensor controlled lighting system is dormant.

City Council also adopted the following motion:

That City Council request the Municipal Licensing and Standards Division, Toronto Building, the City Manager's Tower Renewal Group, the Toronto Environment Office, the Energy Efficiency Office and the Toronto Atmospheric Fund to consult with, among others, the Greater Toronto Apartment Association, tenants associations and the commercial lighting industry, to develop amendments to the City of Toronto Municipal

Code, Chapter 629, Property Standards, which will allow for widespread utilization of motion sensor technology while recognizing the need for the safety of occupants and visitors to buildings. Furthermore, should it be deemed necessary, the regulations developed for the City of Toronto Municipal Code will be forwarded to the Province with a recommendation to consider including them in the Ontario Building Code.

ISSUE BACKGROUND

On June 28, 2006 Ontario Regulation 349/06 added what is now Section 12.2.2.1, to the Ontario Building Code (see Appendix B). This section primarily concerns energy conservation and savings that could be realized through the utilization of motion sensor controlled lighting in new construction. In addition to section 12.2.2.1, the Ontario Building Code also has a section 12.3.4.9. Interior Lighting Controls (see Appendix B).

COMMENTS

Although the automatic control of lighting by motion sensors in some buildings is beneficial from an energy conservation perspective, there are safety and security considerations with respect to reducing the level of illumination. In this regard, the requirements of the Ontario Building Code, in clauses 12.3.4.9,(2)(a) and (c) prescribed that the use of motion sensor controlled lighting be restricted in exits and stairs, including lobby areas.

Lighting Null Zones

The issue of “Null Zones” is addressed in the Municipal Code, Chapter 629, Property Standards, by the inclusion of a definition of a “Null Zone” which states as follows:

“NULL ZONE - Where the artificial lighting for a space is controlled by one or more motion sensors, a portion of that space, which does not receive sensor coverage from the motion sensor.”

Minimum Average Lighting Levels

A definition of the term “minimum average lighting level” is included in the City of Toronto Municipal Code, Chapter 629, in Section 36.B.(1)(a) which states as follows:

“Every exit other than an exit serving not more than one dwelling unit, public corridor or corridor providing access to exit for the public shall be equipped to provide **illumination to an average level of not less than 50 lux** at floor or tread level and at all points such as angles and intersections at changes of level where there are stairs or ramps.”

A minimum average level of illumination is determined by averaging a number of lighting level readings at or over a predetermined value, in this case 50 lux of illumination.

Garbage and Locker Room Lighting

The issue of minimum lighting requirements in areas such as garbage chute and storage rooms and locker rooms are addressed in section H.(1) which states as follows:

“All interior lighting installed to provide the minimum level of illumination required by this chapter may be on circuits controlled by motion sensor controlled switches, except where the lighting circuit is:

- (a) For an exit, including, an exit stairway.
- (b) Required to conform to Subsection B(2)(d).
- (c) For emergency lighting.”

(Note: Section B(2)(d) refers to motion picture houses when the show is in progress.)

The section goes on to state:

- “(d) If the illumination is for an access to exit:
- [1] Maintain an average level of illumination of 10 lux at all times.
 - [2] Except as required under Subsection H(2)(d)[1], maintain the illumination within its area of control active for not less than 15 minutes after the activity that caused the lighting to activate has stopped or left its area of control.

Areas contained within Garbage and locker rooms are not included in the definition of an “Access to Exit” and therefore there would be no requirement to provide the 10 lux minimum level of illumination at all times.

Communications to the Licensing and Standards Committee

In Communication LS25.3.1, a letter dated November 3, 2009, from Mark Gross, General Manager of Operations for Exhibition Place, advises that Exhibition Place has recently completed a retrofit of the lighting in the parking garage at the Direct Energy Centre, and that they had utilized a system with 26 zones. Mr Gross objected to the proposed provision that would require all of the lighting to be activated when any of the motion controlled switches were activated.

In Communication LS25.3.2, a letter dated November 3, 2009, from Mr. Philip Jessup, Director, Cities and Technology Group, The Climate Group, an international non governmental organization based in London, United Kingdom, he requested that parking garages be exempt form the proposed requirement that all lighting between vertical partitions be activated when any motion controlled switch is activated.

These issues have been addressed by updating the amendments so it is only when lighting is in an access to an exit from a residential area that all the lights between vertical partitions have to illuminate when any motion controlled sensor in that area is activated.

Mr. Jessup also requested that the proposed regulation requiring a minimum of 10 lux to be maintained at all times be eliminated.

This has been addressed in part by specifying that it is only areas of the garage that provide an access to an exit need to be provided with a 10 lux lighting level at all times.

In Communication LS25.3.3, a letter dated November 4, 2009, from Ms. Shirley Coyle, President, Rudd Lighting Canada, she makes comment regarding the requirement that an individual motion control sensor control an area of not more than 240 square metres.

This defined area was derived from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRE) standards. Research has revealed no other industry standard for this type of equipment.

Ms. Coyle further objected to the concept of a single motion controlled switch activating all of the lighting between vertical partitions.

Once again this has been addressed by updating the amendments so it is only when lighting is in an access to an exit from a residential area that all the lights between vertical partitions have to illuminate when any motion controlled sensor in that area is activated.

In Communication LS25.3.4, a letter dated October 31, 2009, from Ms. Michele Farley, Senior Fire Code Consultant and Mr. Christian De Marco, Fire Protection Engineer, Fire Consulting Services Ltd, states that the requirement for a 10 lux minimum level of lighting is in excess of those requirements specified in the Ontario Building Code.

Municipal Licensing and Standards (MLS) is aware that the requirement for a minimum of 10 lux is in excess of the requirements specified in the Ontario Building Code, but in the event that the proposed amendments to the Municipal Code are adopted by City Council, the Chief Building Official will request that the Province consider a further amendment to the Ontario Building Code.

From a safety and security perspective, it is considered desirable that a minimum level of illumination be provided at all times. It is recommended that this minimum level of illumination be the same as that provided by emergency lighting, namely 10 lux. Consultations with the lighting industry have revealed several technologies which are currently available and able to achieve this requirement.

Industry and Tenant Consultations

As directed by the Licensing and Standards Committee, consultations were conducted with members of the rental apartment and lighting industries, the City of Toronto's Rental Housing Advisory Committee and the Office of the Ontario Fire Marshal. As a result of concerns raised by the various parties to the consultations motion sensor controlled lighting in stairwells utilized as exits has not been permitted.

Currently, the primary type of motion sensor used for this type of application, is a Passive Infrared Detector (PID), which is known by the industry, and confirmed by the Office of the Ontario Fire Marshal, to be impaired by the presence of smoke. Due to the possible impairment of this type of motion sensor, an amendment has been recommended that requires that motion controlled sensors be of a type that is not impaired by the presence of smoke.

Consultation with the Toronto Police Service

Consultation with the Toronto Police Service (TPS) revealed that they fully support the recommendation that a minimum level of lighting be provided in the common areas of apartment buildings at all times. Therefore, the requirement for a minimum level of 10 lux for safety purposes is supported by TPS due to the assumption that dark areas can provide an environment that promotes anti-social, and in some cases criminal activity.

The following internal and external stakeholders were consulted in the preparation of this report: Toronto Building, Legal Services, Tower Renewal – City Manager’s Office, the Toronto Police Service, the Energy Efficiency Office, City Planning, the Canadian Apartment Properties Real Estate Investment Trust, the Crime Prevention Association of Toronto, Crime Prevention Through Environmental Design Ontario, the Greater Toronto Apartment Association and the Office of the Ontario Fire Marshall.

CONTACT

Warwick R. Perrin,
Policy and Research Consultant,
Policy and Planning Services
Municipal Licensing and Standards
Phone: (416) 392-0896
Fax: (416) 392-0797
e-mail: wperrin@toronto.ca

SIGNATURE

Jim Hart
Executive Director,
Municipal Licensing and Standards

ATTACHMENTS

Appendix “A”: Proposed Amendments to the City of Toronto Municipal Code, Chapter 629, Property Standards

Appendix “B”: Excerpts from the Ontario Building Code

Appendix A
Proposed Amendments to Toronto Municipal Code, Chapter 629, Property Standards

1. The following definitions be inserted in alphabetical order in § 629-1, Definitions:

ACCESS TO EXIT - have the same meaning as in Article 1.4.1.2. of Division A of the Building Code, that is noted as follows for reference purposes only and is subject to Subsection C:

ACCESS TO EXIT - that part of a means of egress within a floor area that provides access to an exit serving the floor area.

EXIT - has the same meaning as in Article 1.4.1.2. of Division A of the Building Code, that is noted as follows for reference purposes only and is subject to Subsection C:

EXIT - That part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare.

MOTION SENSOR CONTROLLED SWITCH - An electrical control device activated by movement within a defined area, for the purpose of operating one or more electrical fixtures.

NULL ZONE - Where the artificial lighting for a space is controlled by one or more motion sensors, a portion of the space that does not receive sensor coverage from the motion sensor.

2. Section 629-36, Lighting, be amended by adding the following:

H. Motion sensor controlled switches.

(1) All interior lighting installed to provide the minimum level of illumination required by this chapter may be on circuits controlled by motion sensor controlled switches, except where the lighting circuit is:

- (a) For an exit, including, an exit stairway.
- (b) Required to conform to Subsection B(2)(d).
- (c) For emergency lighting.

- (2) A motion sensor controlled switch permitted under Subsection H(1) shall:
- (a) Be designed for fail-safe operation so that if the motion sensor controlled switch fails, the electrical fixture that it controls activates.
 - (b) Be of a type, the operation of which is not impaired by the presence of smoke.
 - (c) Control an area that is not more than 240 square metres.
 - (d) If the illumination is for an access to exit:
 - [1] Maintain an average level of illumination of 10 lux at all times.
 - [2] Except as required under Subsection H(2)(d)[1], maintain the illumination within its area of control active for not less than 15 minutes after the activity that caused the lighting to activate has stopped or left its area of control.
 - (c) If the illumination is for a space that is an access to exit from a residential area:
 - [1] Activate all lighting between vertical partitions in the space.
 - [2] Activate all lighting within the space within two seconds of any movement either in or directly related to the area controlled by the motion sensor control switch.
 - (d) Provide coverage to all of the space so that there are no null zones.

Appendix B

Excerpts from the Ontario Building Code

Ontario Building Code Section: 12.2.2.1. Motion Sensors

- (1) Lighting installed to provide the minimum illumination levels required by this Code may be controlled by motion sensors except where the lighting
 - (a) is installed in an *exit*,
 - (b) is installed in a corridor serving patients or residents in a Group B, Division 2 or Division 3 *occupancy*, or (*hospitals or care facilities*)
 - (c) is required to conform to Sentence 3.2.7.1.(5).
- (2) Where motion sensors are used to control minimum lighting in a *public corridor* or corridor providing *access to exit* for the public, the motion sensors shall be installed with switch controllers equipped for fail-safe operation and illumination timers set for a minimum 15-minute duration.
- (3) A motion sensor shall not be used to control emergency lighting.

Ontario Building Code Section: 12.3.4.9. Interior Lighting Controls

- (1) Except as provided by Sentence (2), interior lighting in a *building* that exceeds 500 m² in *building area* shall be controlled with an automatic control device to shut off *building* lighting in all spaces.
- (2) Sentence (1) does not apply to,
 - (a) lighting intended for 24-hour operation,
 - (b) emergency lighting, or
 - (c) lighting for spaces where an automatic shut-off would endanger safety or security
- (3) The automatic control device required in Sentence (1) shall operate on,
 - (a) a scheduled basis using a time-of-day operated control device that turns lighting off at specific programmed times,
 - (b) an occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space, or

(c) a signal from another control or alarm system that indicates the area is unoccupied.

(4) Where the automatic control device conforms to Clause 12.3.4.9.(3)(a), an independent program schedule shall be provided for each floor.

(5) Each space enclosed by *partitions* that extend to the ceiling shall have at least one control device to independently control the general lighting within the space.

(6) Each manual operated control device shall be readily accessible and located so the occupants can see the controlled lighting.

(7) Except as required by Sentences (8) and (9) and except for reasons of safety or security, an individual control device shall,

(a) be capable of being activated,

(i) either manually, or

(ii) automatically by sensing an occupant,

(b) control a floor area having an area not more than 240 m², and

(c) be capable of overriding at any time of-day scheduled shut-off control for not more than 4 h.

(8) Except in spaces with multi-scene control, a control device that automatically turns lighting off within 30 minutes of all occupants leaving a space shall be provided in,

(a) conference rooms, (b) meeting rooms, and (c) employee lunch and break rooms.

(9) A separate control device shall control,

(a) display lighting, (b) accent lighting, (c) case lighting, (d) task lighting, (e) non-visual lighting, and (f) demonstration lighting.