Public Review

Vancouver Building By-law (VBBL)

Proposed change to (Sub)metering Requirements

Topic: (Sub)metering requirements

Code change number: 24-0020

Code reference: 10.2.2.2, 10.2.2.3., 10.2.2.9.

Description of the proposed change

Consolidate (sub)metering requirements, potentially from 4 locations into a single location (10.2.2.9.). Incorporate feedback and lessons learned from energy system sub-metering requirement from the Green Buildings Policy for Rezonings.

Justification

Buildings are subject to (sub)metering requirements from numerous sources, requiring inconsistent levels of compliance. Some require the installation of (sub)metering while others only need to facilitate for future provision. Some require (sub)metering of specific systems (receptacles) while others do not.

10.2.2.9. is already being referenced by all buildings therefore the ideal location for consolidation.

Monitoring requirements can be streamlined as well since Lighting systems are now so efficient there is no need to continue monitoring their power consumption. Consultation with DEIs and SUS confirm no need for lighting monitoring. Need is limited to… “Provision for monitoring electrical and gas for; 1) Major Occupancies, 2) HVAC/Mech equipment, 3) Building Total (Main Meter)” only.

Feedback from projects required to sub-meter as part of rezoning conditions indicate that often metering are designed and constructed to fulfill the rezoning requirement. However, commissioning of the meters is often done poorly, especially if the owner is not planning monitor sub-metered energy data for building optimization. As such, the rezoning requirement for energy system submetering may lead to additional costs that add little value.

This proposed change to require facilitation (instead of installation) of metering allows electrical infrastructure to be designed to enable sub-metering of all buildings in the future, but minimizes costs for owners who do not have current plans to collect and use submeter energy data.

Proposed VBBL content

Legend

Black Text – 2019 Vancouver Building By-law content

Underlined Black Text – Proposed modification to Vancouver Building By-law content

Add VBBL (Clause 10.2.2.2.(2)(j)

j) no requirement to comply with Electrical Energy Monitoring provision of ASHRAE 90.1, Section 8.4.3.1.

Add VBBL (Clause 10.2.2.3.(1)(j)

j) no requirement to comply with Monitoring provision of NECB, Article 7.2.1.1.,

VBBL (Article 10.2.2.9.)

10.2.2.9. Building Services Submetering

1) Every *building* shall be equipped with metering equipment capable of collecting and reporting *building* energy performance data for each energy source to the *building* and for every portion of the *building* which supports a separate use or *occupancy*.

(See Note A-10.2.2.9.(1).)

2) *Buildings* shall be designed to facilitate the installation of the means to monitor energy usage of:

a) central HVAC systems, including boilers, chillers, pumps, heat pumps, fans and other equipment used to provide space heating, space cooling, dehumidification, and ventilation to the building, but not including energy that serves process loads or water heating; and

b) central service water heating systems, and water heating systems for amenity spaces, pools and spas

(See Note A-10.2.2.9.(2).)

New Note A-10.2.2.9(1)

Meters provided by the utility service provider that collect and report energy usage typically already meet this requirement. Energy sources include electricity, gas, liquid fuel, and district system-provided steam, hot or chilled water. Note that for buildings with certain occupancies and gross floor areas, energy and carbon reporting

requirements may apply after building occupancy. Refer to the City of Vancouver Annual Greenhouse Gas and Energy Limits By-law No. 13472 for applicability and details.

New Note A-10.2.2.9.(2)

Monitoring of energy consumption is considered essential to energy management. However, this Article does not require the installation of monitoring equipment, but requires the provision of the necessary access and hardware to permit the eventual installation and use of monitoring equipment, if desired. For elecgrical energy, this might include, for example, the installation of a meter socket or the provision of access to the load side of the service box or main distribution panel to allow for the measurement of energy consumption for electrical energy. For other sources of energy such as gas or district system supplied steam, hot or chilled water, etc., this might include installation of measurement ports or shut-off valves that allow future installation of meters.

Where design loads from Clauses 10.2.2.9.(2)(a) to 10.2.2.9.(2)(b) are less than 10% of the whole-building load, these categories may be combined with other categories.