



Welcome

My name is Heather Knudsen.

This presentation will focus on the electrical power systems and motors part of the 2011 National Energy Code of Canada for Buildings (NECB) – Part 7.

Introduction

- Presentation is part of a series of seven
- Model code developed by Canadian Commission on Building and Fire Codes
- Must be adopted by provincial/territorial authorities to become law

Canadian Codes Centre – 2011 NECB – Electrical Power Systems and Motors



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This presentation is part of a series of 7 on the 2011 NECB.

It is important to note that this is a model code developed by the Canadian Commission on Building and Fire Codes and must be adopted by provincial/territorial authorities to become law.

This may mean that code requirements enacted by legislation within your province or territory might differ from what is presented here.

Please check with your local authority.

Outline

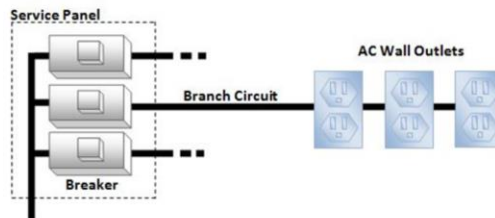
- Scope
- Compliance options
- Prescriptive
- Performance compliance



This presentation will cover the scope and compliance options of the electrical power and motor part of the NECB. It will then give details on the prescriptive requirements as well as discuss electrical power and motor limitations in the performance path.

Scope

- Applies to electrical power systems and motors connected to building's electrical service



Part 7 of the NECB applies to the electrical power systems and motors that are connected to the building's electrical service.

Compliance paths

- Prescriptive path
- Performance compliance path

Part 7 has prescriptive requirements only. It does not have a trade-off path. If the prescriptive requirements are not met, the designer must use the whole building modeling approach of the performance compliance path. In fact, the designer always has the option of using the performance path to do whole building modeling.

Prescriptive – system monitoring

- For systems > 250 kVA, must have means to monitor energy consumption of
 - HVAC systems
 - Interior lighting
 - Exterior lighting

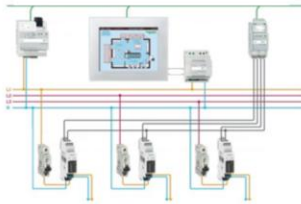
Let's take a look at the prescriptive requirements.

For electrical distribution systems whose load-carrying capacity is greater than 250 kilovolt-amps, there must be a means to monitor the energy consumption of:

- HVAC Systems
- interior lighting, and
- exterior lighting.

Prescriptive – system monitoring

- Buildings with tenants or dwelling units → means to monitor
 - Total building
 - Each individual tenant or dwelling unit



For buildings with dwelling units, the electrical distribution systems must have a means to separately monitor the total building, as well as each individual tenant or dwelling unit, excluding shared systems.

Prescriptive – voltage drop

- Feeder conductors → max 2% at design load
- Branch circuit conductors → max 3% at design load

There are prescriptive requirements on voltage drop.

Feeder conductors must be sized for a maximum voltage drop of 2% at design load.

Branch circuit conductors must be sized for a maximum voltage drop of 3% at design load.

Prescriptive – equipment efficiency

Transformers

Motors

} Referenced standards



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There are prescriptive requirements for transformers and motors. These must meet the minimum efficiency requirements of referenced standards.

Performance compliance limitations

- NECB Part 7 Electrical Power Systems and Motors → no limitations

The performance compliance path is a whole building modeling approach. The designer can choose to use the performance compliance path for code compliance, or may need to use it because the building does not meet the prescriptive path. Part 7 of the NECB places no criteria or limitations on the designer who uses the performance compliance path.



Questions?

www.nationalcodes.nrc.gc.ca

Thank you

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This concludes the presentation on Part 7, the electrical power systems and motors part of the NECB.