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Energy-Efficiency Requirements for Programmable Thermostats

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A.1 OVERVIEW

This annex provides the specifications that are required for a programmable thermostat to be classified as **energy efficient**.

A.1.1 Normative References

CSA-C828-06 *Performance Requirements for Thermostats Used with Individual Room Electric Space Heating Devices*

A.2 CORE FEATURES OF A THERMOSTAT

A.2.1 Programming

The thermostat shall have one or more of the following schedule types:

- A (5 Day – 2 Day) schedule that includes weekdays and weekends
- A (5 Day – 1 Day – 1 Day) schedule that allows different weekend day schedules
- An independent (7 Day) schedule

A.2.2 Program Intervals

- Thermostats shall have at least four possible programming events for each programming period (i.e., wake, leave, return, and sleep settings). See Table 1 for setpoint temperatures
- Each setback/setup period shall be at least eight hours long
- At least one of these weekly schedules must be shipped as the default program

NOTE—Zoning systems, home automation, and building control systems will not be covered in this specification.

A.3 FEATURE REQUIREMENTS

Thermostats shall have the following features:

- Pre-Programmed Settings—At least one of recommended types in A.2.1.
- Recovery Systems shall include:
  - Conventional heating and cooling systems (single stage heat / single stage cool)
  - Multi-stage heat pumps with auxiliary heat that minimize the use of auxiliary heat for recovery
  - Individual room line voltage electrical space heaters.
- Recovery types shall include one or both of the following:
  - Conventional recovery
  - Adaptive recovery
- Long term hold and short term hold features
- Must maintain schedule during power outages
- A method by which the thermostat adapts to application variations (See A.11)
- Temperature control accuracy to meet required specifications (See A.13 and A.14)

Thermostats will have the following additional features based on manufacturer's design:

- Enhanced lighting capability for low lighting conditions
- Indication for auxiliary heat / emergency heat operation of multi-stage heat pumps

A.4 PROGRAMMING REQUIREMENTS

Each thermostat shall have a default permanent weekly schedule of setback / setup times and temperatures for use by the user without any programming procedure on their part. Tables 2 and 3 are examples that may be used.

Each thermostat shall also have programming capability by the user to customize a program that more closely fits their needs. The procedure is to be described for the user.