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**Annex A**

*Energy-Efficiency Requirements for Programmable Thermostats*

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**CONTENTS**

A.1 Overview ..... 1  
    A.1.1 Normative References ..... 1  
A.2 Core Features of a Thermostat ..... 1  
    A.2.1 Programming ..... 1  
    A.2.2 Program Intervals ..... 1  
A.3 Feature Requirements ..... 1  
A.4 Programming Requirements ..... 1  
A.5 Setting Requirements ..... 2  
A.6 Default Program ..... 2  
A.7 Recovery System ..... 3  
A.8 Temporary Hold Feature ..... 3  
A.9 Permanent Hold Feature ..... 3  
A.10 Battery Backup ..... 3  
A.11 Operating Differential of the Thermostat ..... 3  
A.12 Cycle Rate Setting and Differential Adjustment Setting ..... 3  
A.13 Operating Differential AND DROOP TEST ..... 4  
    A.13.1 Operating Differential—Heating Operation ..... 4  
    A.13.2 Operating Differential—Cooling Operation ..... 4  
    A.13.3 Room Temperature Droop—Heating Operation ..... 4  
    A.13.4 Room Temperature Droop—Cooling Operation ..... 4  
    A.13.5 Operating Differential ..... 4  
    A.13.6 Temperature Droop ..... 4  
A.14 Static Temperature Accuracy ..... 4  
A.15 Interface Requirements ..... 5  
    A.15.1 Indicator for Auxiliary/Emergency Heat ..... 5  
    A.15.2 Hold/Manual Setting ..... 5  
    A.15.3 Battery Powered Thermostats ..... 5

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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 Group**  
178 Rexdale Blvd.  
Toronto, Ontario, Canada  
M9W 1R3

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 30 minutes 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:
  - Single stage heating and cooling systems
  - Multistage heating and cooling systems
  - Heat pumps with auxiliary heat with sensible management of auxiliary heat stages.
- 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.