

**SECTION 11 53 71
SOLUTION WARMING CABINETS**

SPEC WRITER NOTE: Delete items or paragraphs in the section that are not applicable and renumber the paragraphs.

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies two-compartment, solution warming cabinets for warming and storing solutions in flasks.

1.2 RELATED WORK

A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: Electrical Connections.

1.3 QUALITY CONTROL

- A. Manufacturer Qualifications: Manufacturer regularly and presently manufactures solution warming cabinets.
- B. Electrical Components and Devices: UL listed and labeled for intended use.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data: Include illustrations and descriptions of solution warming cabinets.
- C. Field Test Reports: Indicate dates and times of tests and certify test results.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Scientific Equipment and Furniture Association (SEFA):
2-10.....Recommended Practices for Installation of
Scientific Laboratory Furniture and Equipment

PART 2 - PRODUCTS

2.1 SOLUTION WARMING CABINETS

- A. Description: Two-compartment, solution warming cabinets with the following characteristics:
 - 1. Double-wall stainless-steel construction insulated with not less than 25 mm (1 inch) of fiberglass or equivalent material.

2. Electrically heated upper and lower compartments capable of maintaining solutions at set temperature between 49 and 57 degrees C (120 and 135 degrees F).
 3. Upper-compartment capacity of not less than 20 two-liter flasks, and lower-compartment capacity of not less than 60 two-liter flasks.
- B. Components:
1. Door: Insulated with heat-resistant gasket for each compartment.
 2. Shelving:
 - a. One stainless-steel adjustable shelf with 6 mm (1/4 inch) minimum perforated holes in upper compartment.
 - b. Two stainless-steel, removable, adjustable shelves in lower compartment.
 3. Control: Automatic with the following components:
 - a. Power switch.
 - b. Heat-indicating light.
 - c. Over temperature protection and indicating light with audible alarm.
 - d. Thermostatic temperature control.
 4. Over-temperature Control: Automatically shuts off heating unit when temperature of solutions exceeds set temperature by 6 degrees C (10 degrees F).
 5. Air-Circulating Fans: Maintain temperature uniformity in upper and lower compartments.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install solution warming cabinets according to manufacturer's written instructions and relevant requirements in SEFA 2.

3.2 TESTS

- A. Field test installed solution warming cabinets to verify proper operation.
 1. Test Procedure: Fill 20 two-liter flasks with water at 21 degrees C (70 degrees F), and place in upper compartment. Insert thermocouple into two center flasks and connect to recording potentiometer.
 2. Test Performance:
 - a. After 8 hours, potentiometer shall indicate temperature of 57 degrees C (135 degrees F), plus or minus 6 degrees C (10 degrees F).

- b. At no time during the 8-hour test period shall potentiometer indicate that the water temperature exceeded 63 degrees C (145 degrees F).
- B. For units that fail testing, make adjustments and corrections to installation, or replace equipment, and repeat tests until equipment complies with requirements.

3.3 PROTECTING AND CLEANING

- A. Protect equipment from dirt, water, and chemical or mechanical injury during the remainder of the construction period.
- B. At the completion of work, clean equipment as required to produce ready-for-use condition.

3.4 OPERATING INSTRUCTIONS

- A. Instruct personnel and transmit operating instructions in accordance with requirements in Section 01 00 00, GENERAL REQUIREMENTS.

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