

SECTION 10 74 15
ILLUMINATED TOWER CLOCK SPECIFICATIONS

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes illuminated tower clocks.
- B. See Division 26 Sections for wiring and other electrical work associated with illuminated clocks.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Include wiring diagrams and layout of each clock dial showing character size, font, spacing, indents, copy, dial face and hand designs as well as each exposed finish.
 - 2. Provide separate wiring details for clock motor and illumination system.
- C. Qualification Data: For Installer and manufacturer.
- D. Operation and maintenance data, including instruction manual for Master Clock Controller.

1.3 QUALITY ASSURANCE

- A. Qualifications: Installers and maintenance mechanics must be Verdin Qualified Installation and Service Technicians.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, handle and protect in accordance with manufacturer's instructions and recommendations.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components which fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation of hardware or illumination system.
 - c. Deterioration of metals, finishes, and other materials beyond normal weathering.
 - 2. Failures specifically exclude, but are not limited to, normal wear, weather-related failures, and deviation from manufacturer's instructions and recommendations.

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B. Warranty Period:

1. Tower Clock: Three years from date of Substantial Completion.
2. Master Clock Controller: Three years from date of Substantial Completion.
3. Optional Carillon: Three years from date of Substantial Completion.
4. Optional Amplifier: Three years from date of Substantial Completion.
5. Optional Speakers and Drivers: Five years from date of Substantial Completion.

1.6 MAINTENANCE

- A. Maintain in accordance with manufacturer's instructions and recommendations.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. The Verdin Company, 444 Reading Road, Cincinnati OH 45402 USA, Telephone Numbers: (800) 543-0488 or (513) 241-4010, Fax Number: (513) 241-1855, Email Address: info@verdin.com and Website: <http://www.verdin.com/>.
1. Basis-of-Design Product: Verdin Series III Illuminated Tower Clock.
 2. No Substitutions.
 3. Dial size, style, and materials; hand style and materials; and size and number of clocks as indicated on drawings.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
1. Sheet: ASTM B 209, Alloy 6061.
 2. Extruded Shapes: ASTM B 221, Alloy 6063.
 3. T and Angle Shapes: ASTM B 308, Alloy 6061-T6.
- B. Aluminum Composite Material (ACM): Factory-formed and -assembled composite 3-4 mm thick fabricated from two 0.012-inch thick aluminum sheet facings bonded, using no glues or adhesives, to solid extruded noncombustible thermoplastic core.
- C. Translucent Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), with Finish 1 (smooth or polished), and 6 mm thick, unless otherwise indicated; colors as indicated.
- D. Fiberglass-reinforced plastic (FRP) material consisting of layers of hand laid fiberglass covered with gel-coat finish painted with acrylic urethane enamel color-coat over epoxy primer/sealer.

2.3 COMPONENTS

- A. Clock Dials:
1. Dial Face: Translucent Acrylic Sheet, 3/8-inch to 1/2-inch thick depending upon dial diameter, standard color white.
 2. Numerals/Characters: Pressure-sensitive film, 2 mil thick, standard color black.

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3. Dial Face Design: Selected from manufacturer's standard designs.
 4. Marker Design: Selected from manufacturer's standard designs.
- B. Clock Hands:
1. Aluminum Composite Material (ACM) Option, each hand individually balanced, finished with high-density single-stage acrylic urethane top-coated with durable paint, standard color black.
 2. Aluminum Option: Each hand precision cut from reinforced aluminum sheets. Each hand individually balanced, finished with durable paint, standard color black.
 3. Clock Hand Hub: Cast aluminum machined, bored, and sized as needed.
 4. Hand Design: Selected from manufacturer's standard designs.
- C. Clock Movements: Heavy-duty pulse type driven by synchronous, totally-enclosed, high-torque, hysteresis-type motor with corrosion-free gearing and self-lubricating bearings.
- D. Clock Illumination
1. Rear-Mounted Lighting System: Double-tube fluorescent fixtures with rapid-start lamps mounted behind the dial and clock movement.
 2. Wiring: Internal with single, concealed electrical connection to building system. Coordinate electrical characteristics with power supply provided.
 3. Ballasts: Low-temperature (zero-degree), high-power-factor, low-energy, fluorescent lamp ballasts that comply with CBMA standards and carry its label.
- E. Clock Controllers:
1. Master Clock Controller (MCC): Compact solid-state design operating pulse-driven or synchronous movements, accurate to within one minute per year, includes 100 year almanac, perpetual clock, menu-driven programming, back-up battery system, automatic reset and automatic Daylight Savings Time (DST) change.
 - a. Dimensions: 8 x 5 x 3 inches.
 - b. Operation: Standard 120 volts - 60 Hertz.
 - c. Optional GPS System Connection Available.
- F. GPS Option: Global Positioning System (GPS) receives time adjustments from military satellites through an exposed, visible antenna.
- G. Clock Chimes System Option: Verdin Digital Electronic Carillon with Westminster Chime and Hour Strike includes either Verdin Chamber Carillon or Verdin Singing Tower Supreme Carillon:
1. Carillon is provided with two voices:
 - a. Voice No. 1: Cast bronze bells
 - b. Voice No. 2: Chimes (cast bronze bells with harp accompaniment).
 2. Amplifier Power Options: 120 watt, 300 watt, or 450 watt.
 3. Speaker horns with either 40 or 60 watt compression drivers.
 4. Optional wireless remote control.
 5. Operation through menu screen windows.
 6. Music Package: Manual and schedulable bell rings, peals, and tolls; Westminster chime and hour strikes; and pre-recorded songs.

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2.4 FABRICATION

- A. Fabricate clocks to requirements indicated for dimensions, design, and thickness and finish of materials, and to sizes indicated on Drawings.
- B. Provide separate wiring detail for clock motor and illumination system.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General: Install clocks in locations indicated on Drawings. Provide accessories necessary for complete installation.
- B. Install clocks in accordance with manufacturer's written instructions and recommendations.
- C. Comply with requirements in Division 26 Sections for connecting illuminated clocks. After installation is complete, install new fluorescent lamps.

END OF SECTION 10 74 15