

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:
 - 1. Manufacturer must have a minimum of 20 years experience manufacturing exterior tower clocks and clock components and demonstrate at least three local installations.
 - 2. Installers and maintenance mechanics must be employees of manufacturer and trained and qualified by manufacturer to install and service tower clocks.

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, 1/4-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. Clock Hand Hub: Cast aluminum machined, bored, and sized as needed.
 3. Hand Design: Selected from manufacturer's standard designs.
- C. Clock Movements: Single Heavy-duty pulse type 4-way clock movement, driven by totally-enclosed, high-torque, hysteresis-type motor with corrosion-free gearing and self-lubricating bearings. Includes drive rods and dial gear gearing for each dial.
- 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: 7 x 7 x 3 inches.
 - b. Operation: Standard 120 volts - 60 Hertz.
- 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 Sonata 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 multi-tap 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.

3.2 ANNUAL MAINTENANCE

- A. Provide annual maintenance for three years after installation.
- B. Provide renewable annual maintenance agreements after the term of the first three years.

END OF SECTION 10 74 15