

SECTION 11 66 43**NEVCO INC MODEL 2770****INTERIOR ELECTRONIC BASKETBALL-VOLLEYBALL-WRESTLING SCOREBOARD****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes: Interior, electronic, multi-sport [basketball] [multi-purpose basketball/volleyball/wrestling] scoreboard[s] including control center, and other accessories for complete functional installation.
 - 1. Section 11 66 23 Gymnasium Equipment
 - 2. Section 26 20 00 Low Voltage Electrical Distribution
 - 3. Section 27 41 16 Integrated Audio-Video Systems
 - 4. Section 10 14 63 Electronic Message Signage

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
- B. National Electrical Code.
- C. Federal Communications Commission, Part 15 Rules & Regulations.
- D. UL and C-UL Standard for Electric Signs

1.3 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 - Submittal Procedures:
 - 1. To minimize the environmental impact of multiple paper copies, product installation prints, instructions and diagrams of manufacturer will be submitted in a paperless fashion. The end user shall receive all pertinent hard-copy documentation at delivery.
 - 2. Product data for scoreboards, controls, and accessories shall include descriptions of control functions etc.
 - 3. Installation drawings, face layout, dimensions, construction, electrical wiring diagrams, and method of anchorage. (Paperless when applicable).
 - 4. Copy of guarantee required by Paragraph 1.5 for review by Architect. (Paperless when applicable).
 - 5. Manufacturer's installation instructions. (Paperless when applicable).
 - 6. Finish Samples.

1.4 QUALITY ASSURANCE

- A. Source limitation: All components including scoreboard, control center, control cable, and other accessories and installation hardware shall be products of a single manufacturer.
- B. Manufacturer qualifications: Company specializing in manufacturing electronic scoreboards with 10 years minimum successful world-wide experience.
- C. Scoreboards and other electrical components shall be certified for use in United States and Canada by Underwriter Laboratories, (UL), Inc. and shall bear either UL or C-UL label only.
- D. Scoreboards and other electrical components shall be electrically grounded in accordance with National Electrical Code (NEC), Article 600.

1.5 GUARANTEE

- A. Provide under provisions of Section 01 78 00 - Closeout Submittals: Guarantee to cover defects in

materials and workmanship.

1. Scoreboards, scoring tables, marquees, message centers, video boards* and Stadium Pro loudspeaker enclosures are guaranteed for a period of five (5) years from the date of invoice against defects in workmanship or materials.
**Video Board exclusions include 8815, 8825, 8835, 8845.
2. Wireless components, portable scoreboards and solar power kit carry a two (2) year guarantee from date of invoice. Hand-held controls and switches carry a one (1) year guarantee from date of invoice. The Stadium Pro loudspeaker front printed scrim is guaranteed for one (1) year from the date of invoice. Video Board Models 8815, 8825, 8835, and 8845 are guaranteed for one (1) year from date of invoice, unless additional years of warranty is purchased. For products supplied by third-party suppliers (i.e. cameras, computers, computer monitors, radar guns, loudspeakers, amplifiers and associated electronics), Purchaser agrees to accept the manufacturer's warranty, if any, in lieu of any warranty by Nevco.
3. Lifetime telephone support.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Nevco Inc, 301 East Harris Avenue, Greenville, Illinois 62246; 800-851-4040; www.nevco.com.
- B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 25 00 - Product Substitution Procedures.

2.2 MATERIALS

- A. Aluminum face and perimeter frame: Fabricated from [0.050] [inch] [1.3] [mm] minimum thickness, ASTM B221 aluminum sheet.
- B. Finish: Acrylic polyurethane paint. Color as selected by Architect from manufacturer's standard range. [Color to be [No. 70 - Desert Tan] [No. 72 - Electronic Blue] [No. 73 - Maroon] [No. 74 - Forest Green] [No. 76 - Print Black] [No. 95 - Silver Gray] [No. 99 - Golden Yellow] [No. 102 - Team Orange] [No. 103 - Cardinal Red] [No. 104 - Medium Purple] [No. 120 - Teal Blue] [No. 121 - Midnight Blue] [No. 140 - Royal Blue] [No. 141 - Navy Blue] [No. 142 - Kelly Green] as provided by Nevco Inc.] [PMS Color No. _____]
- C. Electronics: Low voltage, solid state, 2-wire cable, multiplex system, quartz crystal controlled.
- D. Provide fiber optic communication interface to reduce threat of damage from electrical storms.
- E. LED (light emitting diode) units: Seven-bar, segmented digits in protective aluminum cover, rated typical life 100,000 hours, and designed to provide excellent visibility from all angles and sides.
- F. Provide location specific universal power cord with plug for world-wide installation.
- G. Control cable where required shall be UL listed, 2-wire, type RG-58/U, coaxial cable, [1/4 inch] [6 mm] diameter.
- H. Junction boxes where required: Sheet metal box and cover, [4-1/2 x 2-1/8 x 2-1/8 inches] [114 x 54 x 54 mm] min. complying with NEMA standards.

2.3 SCOREBOARDS

- A. Type: Interior, multi-purpose basketball/volleyball/wrestling electronic scoreboard with two integral horns, changeable captions, and LED displays for time, scores, period, time outs left, number of player fouling with personal fouls, team fouls, bonus and double bonus circles, and next possession arrows; Model 2770-NL (Non-Lit caption, base model) as manufactured by Nevco Inc. Rear-lit (RL) caption plates or Electronic Team Names (ETN) are optional and scoreboard shall be capable of in-the-field retrofit. Only LED lighting shall be used for rear-lit captions, incandescent lighting excluded. No captions shall be applied directly to the face of the scoreboard. All caption plates will be changeable and made of polyvinylchloride with vinyl lettering applied

1. Size: [8 feet long x 6 feet high x 8 inches deep.] [2.4 m long x 1.8 m high x 203 mm deep.]
2. Approximate hanging weight: [135 pounds] [61 kg].
3. Captions:
 - a. [6 inches] [152 mm] high:
 - 1) Basic: "Home", "Guests", and "period".
 - 2) Basketball: "fouls", "player", and "t.o.l." for time outs left.
 - 3) Volleyball: "won" and "game".
 - 4) Wrestling: "match" and "weight".
4. Rear-lit Captions (when specified) shall require zero maintenance.
5. LED displays:
 - a. Timing: Super Bright Red or White [13 inches] [330 mm] high digits.
 - b. Team scores: Super Bright Amber or White [13 inches] [330 mm] high digits.
 - c. Period: Super Bright Amber or White [9 inches] [229 mm] high digits.
 - d. Time outs left, player number with personal fouls, game, and weight: Super Bright Red or White [9 inches] [229 mm] high digits.
 - e. Team fouls, games won, and match: Super Bright Amber or White [9 inches] [229 mm] high digits.
 - f. Next possession: Super Bright Amber or White arrow for each team.
 - g. Include bonus and double bonus in the form of a [4 inch] [101 mm] Super Bright Red or White LED "B".
6. Provide Advertising /Team logo area, 2 each 12" x 12" and 1, 18" x 18" minimum.
7. Suspension mounting attachments will be included.
8. Power requirement: All options included: 169 Watts, MAX, 100-240 Volts AC w/Power Factor Correction.

2.4 ACCESSORIES/OPTIONS

- A. Provide each scoreboard or accessory with control cable of length required. Electrical junction boxes, conduits, mounting hardware, and other accessories as required for installation are to be provided by others.
- B. Electronic Team Names: "HOME" and "GUEST" caption plates to be replaced with programmable Electronic Team Names as manufactured by Nevco Inc.
 1. Specify changeable team names. (ETN) Shall not require controller upgrade, use of additional accessories or computer.
 2. Specify (R)ed or (A)mber ETN LED's (Example: 27xx ETN-R)
- C. Provide rear-lit caption plate option. Specify [RL]. (Model Example: 27xx-RL)
- D. Provide for optional Team Name in place of "HOME" if NL/RL is selected.
- E. Additional accessories include but are not limited to; please specify quantity required.
 1. Nevco Inc. Shot Clocks / End of Period (EOP) system.
 2. Nevco Inc. Stats Panels
 3. Protective Nets/Screens.
 4. Nevco Inc. "A", "AD", or "ADL" signs including Artwork with unlimited amount of color.
 5. Nevco Inc. Locker Room Clocks.
 6. Nevco Inc. Full Color, Red or Amber Message Centers.
 7. Nevco Inc. Video Displays.

2.5 CONTROL CENTER

- A. **Type: Wired**, microprocessor based operator's control center designed to operate different models of scoreboard by interchange of keyboard overlay; Model MPC as manufactured by Nevco Inc.. Console will operate earlier scoreboards from Nevco Inc..
 1. Console: High impact, break-resistant gray plastic [11 x 9-1/2 x 4-1/8 inches] [279 x 241 x 105 mm].
 2. Features:
 - a. Provide with LED displays, lithium cell battery backup to maintain scoreboard memory

- and time of day, self test mode, power on-off switch, alternate time control, and multiple scoreboard operation.
 - b. Split and raised 40 key keyboard, internal beeper acknowledging each entry, and bookmark capabilities.
 - c. Keyboard overlays for scoreboard or accessory.
 - d. Remote hand-held main time switch with integral horn button.
 - e. [25 feet] [7.6 m] control cable with connectors.
 - f. Timer features: Time of day display, multiple time out timers with warning, interval horn, up-count auto stop with horn, and 1/10th second display during last minute.
 - g. Dimmer control for scoreboard.
3. Power requirements: 120 volts, 12 watts, 50/60 Hz.
4. Provide option of battery supply for control operation if utility power not available.
5. Provide carrying case for control center, cable, and hand-held switch; Model CC-3 as manufactured by Nevco Inc.
- a. Size: [18-1/2 x 14-1/2 x 6 inches] [470 x 368 x 152 mm].
 - b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
- B. **Type: Wireless**, microprocessor based, operator's control center with receiver unit mounted at scoreboard and designed to operate different models of scoreboard by interchange of keyboard overlay; Model MPCW as manufactured by Nevco Inc. Console will operate earlier scoreboards from Nevco Inc.
- 1. Unit shall comply with Part 15 of FCC Rules regarding interference.
 - 2. Console: High impact, break-resistant gray plastic [11 x 9-1/2 x 4-1/8 inches] [279 x 241 x 105 mm].
 - 3. Features:
 - a. Control can be used to operate both wireless and wired scoreboards.
 - b. Power on-off switch.
 - c. Split and raised 40 key keyboards, internal beeper acknowledging each entry, and bookmark capabilities.
 - d. Keyboard overlays for scoreboard or accessory.
 - e. Remote hand-held main time switch with integral horn button.
 - f. Provide with LED displays, lithium cell battery backup to maintain scoreboard memory and time of day, self test mode, power on-off switch, alternate time control, and multiple scoreboard operation.
 - g. Timer features: Time of day display, multiple time out timers with warning, interval horn, upcount auto stop with horn, and 1/10th second display during last minute.
 - h. Dimmer control for scoreboard.
 - 4. Receiver: Sturdy impact resistant construction, [6 x 4 x 1.5 inches] [152 x 102 x 38 mm] with [4 inch] [102 mm] antenna and mounted at scoreboard.
 - 5. Maximum range: [1,000 feet] [305 m] from control center to receiver.
 - 6. Power adapters: Provide for each control center.
 - a. Input: 120 volts, 0.4 amps, 50/60 Hz.
 - b. Output: 9 volts, 1.67 amps, 15 watts.
 - 7. Provide option of battery supply for control operation if utility power not available.
 - 8. Provide carrying case for control center and hand-held switch; Model CC-3 as manufactured by Nevco Inc.
 - a. Size: [18-1/2 x 14-1/2 x 6 inches] [470 x 368 x 152 mm].
 - b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.
- C. **Type: Handheld** wireless, basic, AA battery operated, sport specific, control center with receiver unit mounted at scoreboard; Model MPCX₂ as manufactured by Nevco Inc. Control will have operability with earlier scoreboards from Nevco Inc.
- 1. Unit shall comply with Part 15 of FCC Rules and Regulations.

2. Control unit: High impact, break-resistant black ABS plastic Size: 3-1/4" x 5-1/2" x 7/8" (.08 x .14 x .02 m)
3. Features:
 - a. Wireless operation within [1000 feet] [305 m].
 - b. Operate multiple scoreboards simultaneously.
 - c. System allows multiple controllers to link to individual scoreboards.
 - d. High visibility LCD display with a sealed keyboard.
 - e. Long battery life with indicator; include two AA batteries.
 - f. Single hand operation with a no slip grip.
 - g. Built-in belt clip.
 - h. Wireless signal strength meter and internal antenna.
4. Receiver: Injection molded case, [5-1/2 by 3-3/4 by 2 inches] [140 by 95 by 51 mm] mounted at scoreboard.
5. Maximum range: [1,000 feet] [305 m] from control center to receiver.
6. Power adapters: Provide for each scoreboard receiver.
 - a. Input: 120 volts, 0.4 amps, 50/60 Hz.
 - b. Output: 9 volts, 1.67 amps, 15 watts.
7. Provide carrying case for up to two control centers, Model CC-4 as manufactured by Nevco Inc.
 - a. Size: [18-1/2 x 14-1/2 x 6 inches] [470 x 368 x 152 mm].
 - b. Construction: Double wall, high density black polyethylene with padded interior, mechanical latches, and hinges.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify exact scoreboard and control center quantities and junction box locations with Architect.
- B. Coordinate requirements for electrical power, wall blocking, auxiliary framing and supports, suspension cables, and other components to be provided under other Specification Sections to ensure adequate provisions are made for complete, functional installation of scoreboards. [Ensure that building roof structure has been designed for loads of suspended scoreboards.]
- C. Coordinate scoreboard electrical requirements to ensure proper power source, conduit, wiring, and boxes are provided. Prior to installation, verify type and location of power supply.

3.2 INSTALLATION

- A. Install scoreboards and accessories in accordance with manufacturer's instructions and approved installation drawings.
- B. Before installation, field test scoreboards and accessories for operating functions. Ensure that scoreboards accurately perform all operations. Correct deficiencies.
- C. Rigidly mount scoreboards and accessories level and plumb with brackets and fasteners.
- D. Clean exposed surfaces.
- E. Protect scoreboards and finishes from other construction operations.

3.3 DEMONSTRATING AND TRAINING

- A. In accordance with Section 01 75 00 - Starting, Adjusting, and Demonstrating, provide demonstration and training session for Owner's representative covering operation and maintenance of electronic scoreboard.

END OF SECTION