SECTION 115213 - PROJECTION SCREENS

ALL LIBRARIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Electrically operated projection screens and controls.

B. Related Sections:

1. Section 055000 "Metal Fabrications" for metal support framing for projection screens.
2. Section 061000 "Rough Carpentry" for wood backing for screen installation.

1.3 DEFINITIONS

A. Gain of Front-Projection Screens: Ratio of light reflected from screen material to that reflected perpendicularly from a magnesium carbonate surface as determined per SMPTE RP 94.

B. Gain of Rear-Projection Screens: Ratio of light refracted by screen material to that reflected perpendicularly from a magnesium carbonate surface as determined per SMPTE RP 94, except that for measuring luminance of test screen, projection lamp shall be placed behind screen same distance as it was placed in front of magnesium carbonate surface for measuring luminance of reference standard.

C. Half-Gain Angle: The angle, measured from the axis of the screen surface to the most central position on a perpendicular plane through the horizontal centerline of the screen where the gain is half of the peak gain.

1.4 REFERENCES

A. International Code Council (ICC):

1. International Building Code.

B. Society of Motion Picture and Television Engineers (SMPTE):

1. SMPTE RP 94-2000, Gain Determination of Front Projection Screens.

C. Underwriters Laboratory Inc. (UL).

D. Underwriters' Laboratories of Canada (ULC).

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1. Include Material Safety Data Sheets (MSDS).

B. Shop Drawings: For projection screens. Show layouts and types of projection screens. Include the following:

1. For electrically operated projection screens and controls:

a. Location of screen centerline relative to ends of screen case.
b. Location of wiring connections for electrically operated units.
c. Drop lengths.
d. Anchorage details, including connection to supporting structure for suspended units.
e. Details of juncture of exposed surfaces with adjacent finishes.
f. Accessories.
g. Wiring diagrams.

C. Samples: Submit two (2) samples of screen finish material having dimensions of 6 inches by 6 inches (152 by 152 mm).

1.6 INFORMATIONAL SUBMITTALS

A. Quality Assurance:

1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
2. Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance characteristics, criteria and physical requirements.
3. Manufacturer's installation instructions.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For projection screens to include in maintenance manuals.

1. Include parts catalog that includes complete list of repair and replacement parts, with cuts and identifying numbers.

1.8 QUALITY ASSURANCE

A. Source Limitations for Projection Screens: Obtain projection screens from single manufacturer. Obtain accessories, including necessary mounting hardware, from screen manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Qualifications:

1. Workers experienced in performing work of this section who are specialized in work similar to that required of this project.

D. Preinstallation Meeting: Conduct preinstallation meeting at jobsite to verify project requirements and manufacturer's instructions.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Environmental Limitations: Do not deliver or install projection screens until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

B. Storage and Protection:

1. Store electric projection screens in a dry, ventilated area, protected from exposure to harmful weather conditions, at a temperature less than 80 degrees F (27 degrees C).

C. Handling: Handle electrically operated projection screen material with care in order to prevent damage.

D. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

E. Waste Management and Disposal:

1. Separate waste materials for recycling in accordance with Section 017419 "Construction Waste Management and Disposal".

a. Remove packaging materials from site and dispose of at appropriate recycling facilities.
b. Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, and packing materials in appropriate onsite bins for recycling.

1.10 PROJECT AMBIENT CONDITIONS

A. Project Location: Perform electrically operated projection screen work when temperatures are greater than 40 degrees F (4 degrees C).

1.11 SEQUENCING

A. Comply with Other Work: Comply with projection screen manufacturer's written recommendations for sequencing construction operations.

1.12 COORDINATION

A. Coordinate layout and installation of projection screens with adjacent construction, including ceiling suspension systems, light fixtures, HVAC equipment, and partitions.

1.13 WARRANTY

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

PART 2 - PRODUCTS

2.1 ELECTRICALLY OPERATED PROJECTION SCREENS

A. General: Manufacturer's standard units consisting of case, screen, motor, controls, mounting accessories, and other components necessary for a complete installation. Provide units that are listed and labeled as an assembly by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Controls: Remote, three-position control switch installed in recessed device box with flush cover plate matching other electrical device cover plates in room where switch is installed.

a. Provide number of control switches indicated for each screen.
b. Provide power supply for low-voltage systems if required.

2. Motor in Roller: Instant-reversing motor of size and capacity recommended by screen manufacturer; with permanently lubricated ball bearings, automatic thermal-overload protection, preset limit switches to automatically stop screen in up and down positions, and positive-stop action to prevent coasting. Mount motor inside roller with vibration isolators to reduce noise transmission.
3. Screen Mounting: Top edge securely anchored to rigid metal roller and bottom edge formed into a pocket holding a 3/8-inch- (9.5-mm-) diameter metal rod with ends of rod protected by plastic caps.

a. Roller for motor in roller supported by vibration- and noise-absorbing supports.

B. Suspended, Electrically Operated Screens without Ceiling Closure: Motor-in-roller units designed and fabricated for suspended mounting, with bottom of case entirely or partially open under screen compartment.

1. Basis of Design: Subject to compliance with requirements, provide Advantage Electrol Automatic Electric Project Screen by Da-Lite Screen Company, or comparable product by the following:

    a. Motor in Roller:

        1) Da-Lite Screen Company; Advantage Electrol.
        2) Draper Inc.; Paragon.

2. Provide metal or metal-lined wiring compartment on units with motor in roller.
3. Screen Case: Made from extruded aluminum powder coated white.
4. Provide screen case with trim flange to receive ceiling finish.
5. Finish on Exposed Surfaces: Powder coated white.

C. Screen Operation: Electrically operated, UL and ULC listed, retractable, with one (1) rigid metal roller.

D. Motor: Housed inside metal roller and including automatic thermal overload protection, integral gears, capacitor and electric brake to prevent coasting.

1. Type: 3-wire with ground with quick connect male plug-in connector, permanently lubricated, quick reversal type designed for mounting inside roller.
2. Voltage, Frequency: 115 V, 60 Hz.
3. Amperage: 2.4 amps maximum.
4. Include preset, adjustable limit switches to automatically stop viewing surface in Up or DOWN position.

E. Electric Controls: Wall mounted switch.

1. Voltage, Frequency: 115 V, 60 Hz.
2. Switch: 3 position type with cover plate for UP, Down and STOP functions.
3. Junction Box: Internally attached to the screen case.

F. Screen Mounting: Ceiling recessed and plenum rated type.

1. Mounting Hardware: Include mounting hardware.

G. Screen Case: Designed to receive mounting hardware and sized to suit projection screen.

1. Type 1: Extruded aluminum with heavy gauge steel end caps and adjustable steel brackets.

    a. Case Bottom: Self-trimming with built-in flange and equipped with concealed-hinge aluminum door for manual access.
    b. Finish: White powder coated.

2. Case Length: 149-1/2 inches (380 Cm).

H. Screen Size:

1. Viewing Area: 78 inches high by 139 inches wide (198 Cm high by 353 Cm wide).

2.2 FRONT-PROJECTION SCREEN MATERIAL

A. Matte-White (High Contrast) Viewing Surface: Peak gain not less than 0.9, and gain not less than 0.8 at an angle of 50 degrees from the axis of the screen surface (Non-Tensioned Screen).

1. Products: Subject to compliance with requirements, provide one of the following:

a. Da-Lite Screen Company; Matte White.
b. Draper Inc.

B. Material: Vinyl-coated, glass-fiber fabric.

C. Mildew-Resistance Rating: 0 or 1 when tested according to ASTM G 21.

D. Flame Resistance: Passes NFPA 701.

E. Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.

F. Front projection, flame retardant, mildew resistant, easily cleaned with mild soap and water solution.

G. Bottom of fabric to form a pocket holding a metal rod.

H. Format: HDTV – 16.9.

I. Seamless Construction: Provide screens, in sizes indicated, without seams.

J. Edge Treatment: Black masking borders.

K. Size of Viewing Surface: 78 by 139 inches (198 by 353 Cm).

L. Provide extra drop length of dimensions and at locations indicated.

1. Color: Black.
2. Size: 2 inches at top.

2.3 ACCESSORIES

A. Screen Drop: Extra drop of 2 inches in black fabric at top, not to exceed 14 feet 4.3 m) maximum total surface height, including picture area.

B. Low Voltage Control (LVC) System:

1. Single Motor Low Voltage Control (LVC) System: Internal.

C. Silent Motor with Integrated Low Voltage Control System (LVC).

D. Video Projection Interface Control: External, DC controls and Low Voltage 3-button switch with cover plate for wall switch operation.

E. Installation Hardware: Fasteners and other components of type, size and spacing recommended by manufacturer for a complete, functional and secure installation of electric screen.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Provide experienced and qualified technicians to install electrically operated projection screens.

3.2 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Da-Lite Screen Company, Inc., technical data sheets.

3.3 EXAMINATION

A. Site Verification of Conditions:

1. Verify that conditions of substrates previously installed under other sections or contracts are acceptable with electrically operated project screen installation.
2. Ensure electrical power supply is installed to meet electric projection screen requirements.

   a. Verify type and location of power.

3. Inform Architect of unacceptable conditions immediately upon discovery.
4. Proceed with installation only after unacceptable conditions have been corrected.

3.4 COORDINATION

A. Coordinate electric projection screen placement with placement of other ceiling and wall mounted components.

3.5 FRONT-PROJECTION SCREEN INSTALLATION

A. Install front-projection screens at locations indicated to comply with screen manufacturer's written instructions and shop drawings

B. Install front-projection screens with screen cases in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered. Install screen housing and make electrical connections prior in conjunction with installation of ceiling system.

1. Install low-voltage controls according to NFPA 70 and complying with manufacturer's written instructions.

    a. Wiring Method: Install wiring in raceway except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use UL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.

2. Test electrically operated units to verify that screen controls, limit switches, closures, and other operating components are in optimum functioning condition.
3. Test manually operated units to verify that screen-operating components are in optimum functioning condition.

C. Install viewing surface and drive assembly in housing.

D. Securely install screens plumb and level to supporting substrate.

3.6 FIELD QUALITY CONTROL

A. Manufacturer’s Field Services: Have manufacturer’s technical representative schedule site visits to review work as follows:

1. After delivery and storage of products.
2. When preparatory work for which work in this Section depends is complete, but before installation begins.
3. Two (2) times during progress of work and at 25% and 60% of completion.
4. Upon completion of work, after cleaning is carried out.

B. Testing and Inspection: Operate each screen three (3) times to ensure viewing surfaces extend and retract through full range of motion.

1. Verify controls, limit switches, and other components function as designed and meet project requirements.
2. Ensure viewing surface raising operation fully engages.
3. Adjust motors, controls and components to allow for smooth, unobstructed screen operation.

3.7 FINAL CLEANING

A. Upon completion, remove surplus materials, rubbish, tools and equipment.

3.8 PROTECTION

A. Protect electrically operated projection screens from damage during construction.

3.9 MAINTENANCE

A. Perform work during regular trade working hours satisfactory to Owner.

3.10 PROJECTION SCREEN SCHEDULE

A. Electrically Operated, Front-Projection Screen Type: Suspended, without ceiling closure.

1. Motor Configuration: Motor in roller.
2. Screen Surface: High Contrast Matte white.
3. Viewing Surface Size: 78 by 139 inches (198 by 353 cm).
4. Extra Drop Length: 2 inches standard black drop at top.

END OF SECTION 115213