SECTION 115213.19 - REAR PROJECTION SCREENS

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, flexible rear-projection screens and controls.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for metal support framing for rear-projection screens.

1.3 DEFINITIONS

A. Gain: 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.

B. 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 ACTION SUBMITTALS

A. Product Data: For each type of product.

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

1. For rigid rear-projection screens:

a. Frame details.
b. Anchorage details.
c. Details of juncture of exposed surfaces with adjacent finishes.
d. Accessories.

2. For manually operated, flexible rear-projection screens:

a. Drop lengths.
b. Anchorage details.
c. Accessories.

3. For electrically operated, flexible rear-projection screens and controls:

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

C. Samples for Initial Selection: For finishes of surface-mounted screen cases.

1.5 CLOSEOUT SUBMITTALS

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

1.6 DELIVERY, STORAGE, AND HANDLING

A. Environmental Limitations: Do not deliver or install rear-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. Store rear-projection screens in manufacturer's protective packaging and according to manufacturer's written instructions.

1.7 COORDINATION

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

   1. Obtain rear-projection screens from same manufacturer as front-projection screens.

2.2 ELECTRICALLY OPERATED, FLEXIBLE REAR-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. 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.

2. Controls: Remote, key-operated, 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 two control switches.
   b. Provide number of control switches indicated[**for each screen**].
   c. Provide power supply for low-voltage systems if required.
   d. Provide locking cover plates for switches.
   e. Provide key-operated, power-supply switch.
   f. Provide [**infrared**] [**radio-frequency**] remote control consisting of battery-powered transmitter and receiver.
   g. Provide video interface control for connecting to projector. Projector provides signal to raise or lower screen.

3. 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.
4. 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 is supported by vibration- and noise-absorbing supports.

5. Tab Tensioning: Provide units that have a durable low-stretch cord, such as braided polyester, on each side of screen that is connected to edge of screen by tabs to pull screen flat horizontally.

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 the screen compartment.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Da-Lite Screen Company; [**Tensioned Advantage Electrol**] [**Tensioned Professional Electrol**].
   b. Draper Inc; [**Access/Series V**] [**Access XL/Series V**].
   c. Stewart Filmscreen Corporation; [**Model ABB**] [**Visionary**] [**Visionary Grande**].
   d. <**Insert manufacturer's name; product name or designation**>.

2. Provide metal or metal-lined wiring compartment.
3. Screen Case: Made from [**metal**] [**metal and fire-retardant materials**].
4. Provide screen case [**with trim flange to receive ceiling finish**] [**constructed to be installed with underside flush with ceiling**] [**constructed to be installed with ceiling finish applied to underside**].
5. Finish on Exposed Surfaces: [**Prime painted**] [**Vinyl covering or baked enamel**].

2.3 FLEXIBLE REAR-PROJECTION SCREEN MATERIAL

A. Ultra-Wide-Angle Screens: Coated vinyl sheet with peak gain of not less than 0.7, and half-gain angle of at least 70 degrees from the axis of the screen surface.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Da-Lite Screen Company; Ultra Wide Angle.
   b. Stewart Filmscreen Corporation; Aeroview 70.
   c. <**Insert manufacturer's name; product name or designation**>.

B. Wide-Angle Screens: Coated vinyl sheet with peak gain of not less than 1.0, and half-gain angle of at least 39 degrees from the axis of the screen surface.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Da-Lite Screen Company; [**Dual Vision**] [**High Contrast Da-Tex**].
   b. Draper Inc; Cineflex.
   c. Stewart Filmscreen Corporation; [**Aeroview 100**] [**Filmscreen 100**].
   d. <**Insert manufacturer's name; product name or designation**>.

C. Moderate-Gain Screens: Coated vinyl sheet with peak gain of not less than 1.3, and half-gain angle of at least 30 degrees from the axis of the screen surface.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Da-Lite Screen Company; Da-Tex.
   b. Stewart Filmscreen Corporation; Lumiflex 130.
   c. <**Insert manufacturer's name; product name or designation**>.

D. Moderate-Gain Screens: Coated vinyl sheet with peak gain of not less than 1.5, and half-gain angle of at least 30 degrees from the axis of the screen surface.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Stewart Filmscreen Corporation; Filmscreen 150.
   b. <**Insert manufacturer's name; product name or designation**>.

E. High-Gain Screens: Coated vinyl sheet with peak gain of not less than 3.0, and half-gain angle of at least 10 degrees from the axis of the screen surface.

1. Products: Subject to compliance with requirements, [**provide the following**] [**provide one of the following**] [**available products that may be incorporated into the Work include, but are not limited to, the following**]:

   a. Da-Lite Screen Company; 3D Virtual Black.
   b. <**Insert manufacturer's name; product name or designation**>.

F. Mildew-Resistance Rating: Zero or 1 when tested according to ASTM G 21.

G. Flame Resistance: Passes NFPA 701.

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

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

J. Size of Viewing Surface: 120" x 160".

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

1. Color: [**Same as viewing surface**] [**Black**].

PART 3 - EXECUTION

3.1 FLEXIBLE REAR-PROJECTION SCREEN INSTALLATION

A. Install rear-projection screens at locations indicated to comply with screen manufacturer's written instructions.

B. Install rear-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.

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.

3.2 PROTECTING AND CLEANING RIGID REAR-PROJECTION SCREENS

A. Provide temporary covering of rear-projection screens until time of Substantial Completion. Use type of covering approved by screen manufacturer that effectively protects screen from abrasion, breakage, or other damage.

B. Clean rear-projection screens on both faces immediately before date scheduled for inspection intended to establish date of Substantial Completion. Use methods and cleaning materials recommended by screen manufacturer, taking care not to scratch or damage optical coatings or screen substrates.

END OF SECTION 115213.19