

## SECTION 11132 - PROJECTION SCREENS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Front-projection screens.
  - 2. Projector mount.
- B. Related Sections include the following:
  - 1. Division 6 Section "Rough Carpentry" for wood backing for recessed screen installation.
  - 2. Division 9 Section "Gypsum Board Assemblies" for framing for recessed ceiling projection screen.
  - 3. Division 16 Sections for electrical service and connections including metal device boxes for switches and conduit, where required, for low-voltage control wiring.

#### 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. 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 SUBMITTALS

- A. Product Data: For each type of screen indicated.
- B. Shop Drawings: Show layouts and types of projection screens. Include the following:
  - 1. Location of screen centerline relative to ends of screen case.
  - 2. Location of wiring connections.
  - 3. Location of seams in viewing surfaces.
  - 4. Drop length.

5. Connections to supporting structure for pendant- and recess-mounted screens.
6. Anchorage details.
7. Details of juncture of exposed surfaces with adjacent finishes.
8. Frame details.
9. Accessories.
10. Wiring Diagrams: For electrically operated units.

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

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain projection screens through one source from a single manufacturer. Obtain each screen as a complete unit, including necessary mounting hardware and accessories.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver projection screens until building is enclosed and other construction within spaces where screens will be installed is substantially complete and ready for screen installation.
- 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 projection screens with adjacent construction, including ceiling framing, light fixtures, HVAC equipment, fire-suppression system, and partitions.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

## 2.2 FRONT-PROJECTION SCREENS

- A. Electrically Operated Screens, 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. Line Voltage Control: Remote, 3-position control switch installed in recessed metal device box with flush cover plate matching other electrical device cover plates in room where switch is installed.
  2. End-Mounted Motor: Instant-reversing, gear-drive 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. Locate motor in its own compartment as follows:
    - a. On right or left end of screen as indicated.
  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 end-mounted motor supported by self-aligning bearings in brackets.
  4. Tab Tensioning: Units have stainless-steel tensioning cables on both sides of screen connected to edges of screen by tabs to pull screen flat horizontally.
- B. Recessed, Electrically Operated Screens without Ceiling Closure: end-mounted motor units with bottom of case entirely or partially open under screen compartment.
1. Basis of Design Product: Access Series V as manufactured by Draper, Inc. or by manufacture listed below:
    - a. Da-Lite Screen Co., Inc.
    - b. Stewart Filmscreen Corporation.
    - c. Bloch Enterprises, Inc.
    - d. Da-Lite Screen Co., Inc.
    - e. Stewart Filmscreen Corporation.
  2. Provide metal or metal-lined motor enclosure on units with end-mounted motor.
  3. Provide metal or metal-lined wiring compartment on units with motor in roller.
  4. Screen Case: Made from metal.
  5. Provide screen case with trim flange to receive ceiling finish.
  6. Prime paint surfaces of screen case that will be exposed to view in the finished work.
- C. Screen Material and Viewing Surface:
1. Matte-White Viewing Surface: Peak gain of 0.9 to 1.0, and gain of not less than 0.8 at an angle of 50 degrees from the axis of the screen surface.

- a. Available Products:
  - 1) Bloch Enterprises, Inc.; Matte White.
  - 2) Bretford Manufacturing, Inc.; Matte White.
  - 3) Da-Lite Screen Co., Inc.; Matte White.
  - 4) Draper Inc. Fiberglass Matte White.
2. Material: Vinyl sheet.
3. Mildew Resistance: Rating of 0 or 1 when tested according to ASTM G 21.
4. Flame Resistance: Passes NFPA 701.
5. Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.
6. Seamless Construction: Provide screens, in sizes indicated, without seams.
7. Edge Treatment: Without black masking borders.
8. Provide extra drop length of dimension indicated to comply with the following requirements for fabric color and location of drop length:
  - a. Color: Black.
  - b. Location: At top of screen.
9. Size of Viewing Surface: 54 by 72 inches.

## 2.3 PROJECTOR BRACKET

### A. Projector Mounts

1. Basis of Design Product: SMS Projector Mounts, Model Adjustable Model CLV 300-350 by Draper, Inc. of Spiceland, Indiana or approved equal.
  - a. Universal Project Bracket: shall be provided for any LCD/DLP projector under 26 lbs. with threaded ceiling-mounting holes. Bracket shall be of steel, with silver finish. Machined steel center column to attach securely to SMS ball joint with twist-lock engagement. Short and long arms interchangeable to fit virtually any projector mounting hole spacing. Infinite adjustment in both horizontal and vertical axes. Must enable installer to simply find any easily secure projector's center of gravity. Universal Projector Bracket to suspend projector from mount. Clamp/shelf type brackets not acceptable. Hardware for attaching bracket to projector provided by Draper – a full set of screws, washers, threaded vertical spacers, and short and long arms to fit virtually any projector model. Universal bracket shall be compatible with all SMS mounts for LCD/DLP Projectors. Adjustable Mount Model (CLV 300-350) color to be White.
  - b. CLV 1050-1300: Ceiling mount shall consist of a 2-piece telescoping column and Universal Projector Bracket. Column shall be of extruded aluminum, with a silver finish. Outer column shall securely attach to ceiling, or above ceiling, with steel ceiling plate (provided). Installer shall provide mounting hardware appropriate to ceiling conditions. Outer column shall have  $\pm 30^\circ$  pitch adjustment at the ceiling bracket. Outer column shall have two built-in self-concealing cable races with molded press fit covers. Inner column shall have infinite height adjustability within range according to column size. Setscrew shall be used to lock column in

position. Inner column shall have steel ball joint to which the Universal Projector Bracket attaches with twist-lock engagement. Inner column shall be equipped with positive safety stop to prevent separation from outer column. Mount shall have up to 30° roll or pitch adjustment and 360° yaw adjustment at ball joint. Two setscrews shall be used to lock ball joint in position. Maximum load shall be 26 lbs. – color to be White.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Install projection screens at locations indicated to comply with screen manufacturer's written instructions.
- 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.
  - 1. Install low-voltage controls according to NFPA 70 and 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, closure, 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 coated rear-projection screens with optically coated surfaces oriented toward projector.
- D. Install high-performance rear-projection screens with orientation as indicated in manufacturer's written instructions.
- E. Install factory-framed rear-projection screens in prepared wall openings. Securely anchor frames to surrounding construction so frames are plumb and level and screen surfaces are flat.
- F. Install rear-projection screens with glass substrates, in frames specified in other Sections, to comply with applicable requirements of Division 8 Section "Glazing" and screen manufacturer's written instructions. Do not abrade screen surfaces; handle screens carefully during installation using procedures and tools recommended by screen manufacturer. Set projection screen with surfaces flat and edges plumb and level.

- G. Install rear-projection screens with plastic substrates, in frames specified in other Sections, to comply with screen manufacturer's written instructions. Do not abrade screen surfaces; handle screens carefully during installation using procedures and tools recommended by screen manufacturer. Clamp units only at top edge and allow for expansion and contraction of plastic glazing material by providing frame with adequate bite and edge clearances.

### 3.2 PROTECTING AND CLEANING

- A. After installation, protect projection screens from damage during construction. If damage occurs despite such protection, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.
  - 1. Provide temporary covering of rear-projection screens until time of Substantial Completion. Use type of covering approved by screen manufacturer that will effectively protect 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 11132