(**Specifier Note**: The purpose of this guide specification is to assist the Specifier in correctly specifying Scissor Lifts (SL and SLX) motorized projector lifts and their installation. The Specifier needs to edit these guide specifications to fit the needs of each specific project. References have been made within the text of the specification to MasterFormat section numbers and titles. The Specifier needs to coordinate these numbers and titles with sections included for the specific project.

Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Desired options for motors, enclosures and controls need to be noted. Brackets have been used to indicate when a selection is required. Unless noted otherwise, the first option is the standard feature. Contact a Draper, Inc. representative for further assistance with appropriate product selections.

Projector equipment should be chosen during the planning stages of a project to ensure desired mounting and functions can be achieved. An AV consultant or expert should be involved whenever possible. Coordinate projector specifications with motorized projector lift capabilities.)

SECTION 11 52 23
AUDIO-VISUAL EQUIPMENT SUPPORTS
Draper, Inc. Scissor Lift SL/SLX Motorized Projector Lifts

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Motorized projector lifts.

1.2 ACTION SUBMITTALS

A. Refer to Section [**01 33 00 Submittal Procedures**] [**Insert section number and title**].

B. Product Data: For each type of lift, including manufacturer recommended installation procedures.

C. Shop Drawings: Include dimensions, method of attachment, structural support, [**bracing,**] and electrical wiring.

D. Samples: Provide finish samples.

1.3 CLOSEOUT SUBMITTALS

A. Refer to Section [**01 78 00 Closeout Submittals**] [**Insert section number and title**].

B. Maintenance data.

1.4 QUALITY ASSURANCE

A. Motors for Scissor Lifts shall be certified for use in the United States and Canada by Underwriters Laboratory (UL), Inc. and shall bear UL label. Scissor Lift SL and SLX are US UL Listed to UL 2442 and Canada UL Listed to CSA C22.2 No. 60065-03.

1.5 DELIVERY, STORAGE AND HANDLING

A. Refer to Section [**01 60 00 Product Requirements**] [**Insert section number and title**].

B. Deliver motorized projector lifts in manufacturer's original, unopened, undamaged containers with identification labels intact.

(**Specifier Note**: Draper, Inc. does not warrant against freight damage, concealed or otherwise. RETAIN inspection and storage paragraphs below for all projects.)

C. Inspect motorized projector lifts for freight damage, concealed or otherwise, upon delivery to project site. Report damage to freight carrier immediately for replacement of motorized projector lifts.

D. Store motorized projector lifts in resealed manufacturer's original containers.

1.6 WARRANTY

A. Manufacturer's 5-year limited warranty.

PART 2 - PRODUCTS

(Specifier Note: Product information is proprietary to Draper, Inc. If additional products are required for competitive procurement, contact Draper, Inc. for assistance in listing competitive products that may be available.)

2.1 MANUFACTURER

A. Draper, Inc.; 411 South Pearl Street; Spiceland, IN 47385-0425; Phone 765.987.7999; website www.draperinc.com

1. Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with [**Section 01 25 00 Substitution Procedures**] [**Insert section number and title**].

B. Source Limitations: Obtain motorized projector lifts from single manufacturer as a complete unit including necessary mounting hardware and accessories.

2.2 PERFORMANCE REQUIREMENTS

(**Specifier Note**: Suspended projector lifts may require bracing to resist seismic loads depending on weight, project location, and installation details. Suspension rods, bracing, and other support components are not provided by Draper and will need to be designed for specific applications, detailed on drawings, and specified in other sections. DELETE seismic bracing paragraph below if not project specific.)

A. Seismic Bracing: Motorized projector lift suspension components and method of installation shall comply with requirements for Seismic Zone [**1**] [**2A**] [**2B**] [**3**] [**4**].

2.3 MOTORIZED PROJECTOR LIFTS

(**Specifier Note**: Choose SL or SLX model based on vertical drop and weight capacity required. DELETE those not required.)

A. Electrically Operated, Scissor Lift: Electrically operated, tight stacking scissor type, projector lift for lowering and retracting projector from ceiling storage location to position for show or service. Scissor Lift Model [SL4] [SL6] [SL8] [SL10] [SL12] [SLX10] [SLX14] [SLX17] [SLX21] [SLX24] [SLX28] as manufactured by Draper, Inc. to include controls, mounting hardware, wiring, and other components required for complete operation. If installed in a non-plenum space, or if installed in a plenum space with Environmental Airspace Housing and Closure, the entire unit is US UL Listed to UL 2442 and Canada UL Listed to CSA C22.2 No. 60065-03.

1. Basis-of-Design Product: Scissor Lift (SL and SLX).

(Specifier Note: Factory set show position is **18 inches (457 mm) for Series SL** & **36 inches (914 mm) for Series SLX**. Other show positions can be specified and position can be field adjusted.)

a. Limit Switches: Provide factory set at [**18 inches (457 mm) - SL**] [**36 inches (914 mm) - SLX]** [_____] [inches] [mm] and field adjustable.

(**Specifier Note**: SELECT maximum lift extension and capacity BELOW. Delete those not required. Please note: Th SL and SLX have different physical footprints. Consult Draper product information for details.)

b. Maximum Lift Extension and Capacity:

1) SL4: Extension 4 feet (1.2 m), Capacity 132 LBS. (60KG).
2) SL6: Extension 6 feet (1.8 m), Capacity 125 LBS. (56.7KG).
3) SL8: Extension 8 feet (2.4 m), Capacity 118 LBS. (53.5KG).
4) SL10: 10 feet (3.0 m), Extension Capacity 108 LBS. (49KG).
5) SL12: Extension 12 feet (3.6 m), Capacity 100 LBS. (45.4KG).
6) SLX10: Extension 10 feet 7 inches (232 cm), Capacity 453 LBS (205KG).
7) SLX14: Extension 14 feet 2 inches (432 cm), Capacity 435 LBS (197KG).
8) SLX17: Extension 17 feet 8 inches (538 cm), Capacity 418 LBS (190KG).
9) SLX21: Extension 21 feet 3 inches (648 cm), Capacity 393 LBS (178KG).
10) SLX24: Extension 24 feet 9 inches (754 cm), Capacity 375 LBS (170KG).
11) SLX28: Extension Capacity 28 feet 5 inches (866 cm), 350 LBS (159KG).

c. Approximate Travel Speed: 90 inches (2286 mm) in 60 seconds.

(**Specifier Note**: COORDINATE required voltage with electrical engineer.)

d. Voltage: **[120V] [240V US] [240V CE].**

B. Operating Mechanism: Three sets of steel stabilizing scissors, positioned on sides and rear of operating pan, and two **[3/16] inch] [5] mm]** diameter cables with **[4200 foot-pounds] [5694 newton-meters]** tensile strength per cable, raise and lower operating pan with instantly reversible, thermally protected, lifetime lubricated, 3-wire motor with electric brake specified above.

C. Safety Belt: Provide lift with fail-safe inertial safety belt system.

D. Operating Pan: **[2-3/4 by 20 by 20] [3-1/4 by 35 by 35] inches] [[70 by 508 by 508] [83 by 889 by 889] mm]**, **[11 gauge] [3.2 mm]** steel pan with **[white] [black]** powder coat paint finish for attachment of suspended projector.

(**Specifier Note**: SELECT one of three projector attachment options below.

1. Projector Attachment: [**Bolted to operating pan**] [**Mounted to operating pan with brackets provided by projector manufacturer**] [**Mounted to operating pan with universal projector mount**].

(**Specifier Note**: DELETE universal projector mount if not specified in projector attachment paragraph above.)

a. Universal Projector Mount: Universal bracket suitable for projectors up to 26 lbs (12 kg) with adjustable arms that can be manipulated to fit most projectors with three or four mounting holes. Tilt, yaw and pan adjustments can be made quickly using spring-loaded bolts.

1) Basis-of-Design Product: Universal Projector Mount as manufactured by Draper, Inc.

(**Specifier Note**: Motorized projector lifts can be provided with optional factory installed hookups for video, RGB, and control cables. SELECT prewired hookups option in paragraph below if desired. COORDINATE type and model of projector and requirements for shielded cables and type of connectors.)

E. Cable Management System: Provide lift with means for attachment of cables to rear scissor to eliminate cord tangles. Include 120V pre-wired power cable[**.**] [**and prewired hookups for equipment as follows:**]

(**Specifier Note**: DELETE input and output connectors paragraphs below if prewired hookups option is not specified in cable management paragraph above. In addition to the 2 power cords provided, there is a limit of four (4) additional video, RGB and control cables per Scissor Lift.)

1. Input Connectors: [[**insert number**]BNC,] [[**insert number**]15 Pin HD,] [[**insert number**]RCA,] [[**insert number**]S-Video,] [[**insert number**]RS232 (DB9),] [[**insert number**]CAT 6] [[**insert number**]HDMI].
2. Output Connectors: [[**insert number**]BNC,] [[**insert number**]15 Pin HD,] [[**insert number**]RCA,] [[**insert number**]S-Video,] [[**insert number**]RS232 (DB9),] [[**insert number**]CAT 6] [[**insert number**]HDMI].

(**Specifier Note**: Scissor Lift can be provided with ceiling closure panel suspended below projector from rods attached to operating pan. Closure can be recessed to accept acoustical ceiling panel or mounted flush with ceiling. If installed in a non-plenum space, or if installed in a plenum space with Environmental Airspace Housing and Closure, the entire unit is approved to UL 2442 and CSA C22.2 No. 60065-03 by Underwriters' Laboratories for the U.S. and Canada. If ceiling closure is required, include the following paragraph)

F. Ceiling Closure Panel: Steel closure panel **[with] [without ceiling tile lip],** suspended below projector from rods attached to operating pan. Closure [**mounted with recess to allow attachment of acoustical ceiling panels**] [**mounted flush with adjacent ceiling surface and finished with white powder coat paint finish**].

*(**Specifier Note:** Draper manufactures several standard sizes of Scissor Lift with ceiling closure. Refer to Draper product literature for available sizes.)*

1. Ceiling closure: [_____] [inches] [mm] wide by [_____] [inches] [mm] long.]
2. Trim: Metal trim ring to finish ceiling opening.
3. Trim: Lipless closure panel.
4. Color: **[Black] [White]** powder coat.

(**Specifier Note**: Draper Scissor Lift can be provided with housing suitable for use in an Environmental Airspace Housing. If installed in a non-plenum space, or if installed in a plenum space with Environmental Airspace Housing and Closure, the entire unit is approved to UL 2442 and CSA C22.2 No. 60065-03 by Underwriters' Laboratories for the U.S. and Canada. If housing is required, include the following paragraph.)

G. Environmental Airspace Housing: Fabricated from steel panels for recessing projector lift in ceiling space used as return air plenum. Provide with universal closure and metal trim to finish ceiling opening.

(**Specifier Note**: Optional ceiling access door in paragraph below provides access to projector and lift for cleaning, maintenance or repairs when unit is installed above a hard ceiling. DELETE paragraph if not project specific.)

H. Ceiling Access Door: Provide 24 by 24 inch (610 by 610 mm) hinged ceiling access door [**with white finish**] [**recessed to accept ceiling tile**] installed to allow access to projector and mount installed above ceiling.

(**Specifier Note**: Optional power outlet is available. DELETE paragraph if not project specific.)

I. Provide lift with **[110 VAC, 60 HZ fused] [240 VAC US] [240 VAC CE]**, switched duplex outlet to power projector. Outlet automatically energized in down position.

(**Specifier Note**: Scissor Lift can be provided with a, optional Current Sensor to delay upward operation of the lift while a load (projector's fan) is being placed on switched duplex. This allows the projector to cool sufficiently, and prevents bulb blowouts due to high temperatures. If Current Sensor is required, include the following paragraph).

J. Current Sensor: AC sensor to delay upward operation of traveling tray while a load (projector's fan) is being placed on switched duplex. Sensor to have a power threshold of 0.5 amps.

2.4 CONTROLS

A. Provide [**1**] [**2**] [**3**] [**4**] control stations to lower, raise, and stop projector lift.

(**Specifier Note**: 3-push-button low voltage switch and momentary key switch are standard for Scissor Lift. A second momentary key switch can be used to replace the 3-push-button switch)

B. Single Station Control: **[3-position, low voltage switch with white cover plate] [momentary key switch with stainless steel cover plate]** and momentary key switch with stainless steel cover plate.

(**Specifier Note**: Optional low voltage remote controls allow motorized projector lifts to be controlled by an interface with a master control system using RS232, or using infrared remote control receiver. Please note that the RS232 and IR remote control will only control the “Show” position. SELECT desired options in paragraph below.)

C. Remote Control: Infrared remote-control receiver. Wiring from switches or receivers to be 24 V.

D. RS232: Interface for serial communication.

(**Specifier Note**: Optional key operated power supply switches limit access to projector mount controls during specified time periods. COORDINATE options below with control paragraphs above.)

E. Key Operated Power Supply Switch: Key operated switch to control [**low voltage**] [**120 V**] **[240V US] [240V CE]** power to mount operating [**switch**] [**infrared remote-control receiver**]. Provide with [**2**] [**insert number**] keys.

(**Specifier Note**: Motorized projector lifts can be mounted on ceiling surface or recessed into ceiling space. COORDINATE requirements with desired installation.)

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of motorized projector lifts with ceiling construction and related components penetrating or above ceilings such as lighting fixtures, mechanical equipment, ductwork, and fire-suppression system.

B. Coordinate requirements for blocking, structural supports, bracing, and ceiling openings to ensure proper installation of motorized projector lifts.

C. Coordinate location and requirements for power supply conduit, and wiring required for motorized projector lifts and controls.

D. Coordinate installation of recessed motorized projector lifts with construction of suspended [**acoustical panel ceilings specified in Section 09 51 13 Acoustical Panel Ceilings**] [**gypsum board ceilings specified in Section 09 29 00 Gypsum Board**].

(**Specifier Note**: DELETE coordination paragraph for acoustical ceiling panels adhered to closure panels if not project specific.)

E. Coordinate required tolerances and weight restrictions for acoustical ceiling panels adhered to mount closure.

(**Specifier Note**: DELETE motorized screen coordination paragraph below if interface of controls for motorized projector lift and motorized screen are not project specific.)

F. Coordinate interface and installation of motorized projector lift controls with provision of motorized screen.

3.2 INSTALLATION

A. Install motorized projector lifts and controls at locations and heights indicated on Drawings.

B. Install motorized projector lifts complete with necessary hardware, anchors, brackets and fasteners; according to manufacturer's written instructions and as specified.

3.3 FIELD QUALITY CONTROL

A. Test motorized projector lifts to verify that lifts, controls, limit switches, closures, and other operating components are functional. Correct deficiencies.

3.4 DEMONSTRATION

A. Demonstrate operation of motorized projector lifts to Owner's designated representatives.

3.5 PROTECTION

A. Protect motorized projector lifts after installation from damage during construction operations. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

END OF SECTION