LANCASTER® AUDITORIUM SEATING

Section 12 61 00: Fixed Audience Seating

PART 1 GENERAL

1.1 SUMMARY

A. Work Included in this section: Provision of cushioned floor-mounted or riser-mounted fixed auditorium seating including attachment, or other work required for installation unless otherwise noted.

B. Related Sections

1) Section 26 00 00: Electrical.
2) Floor mounting anchors are provided as specified with every order.
3) Data/Communications cabling and jacks not included.

1.2 SUBMITTALS

A. Product Data including manufacturer's assembly instructions.

B. Code Requirements - Compliance with the required local and national building and safety codes is the sole responsibility of the Owner/Architect/Contractor. Shop drawings are based on code requirements for assembly seating as found in IBC (International Building Code). Code information above is offered for informational purposes only and strictly as a courtesy to the Owner/Architect/Contractor. This is in no way an assumption of duty on the part of KI relative to code interpretation and compliance. KI personnel are not trained for, nor are they experts at code compliance or interpretation.

C. Field Verification **-** Shop drawings incorporate building information compiled from various sources associated with this project and deemed as reliable. Conditions directly affecting the product or its installation must be field verified.

D. Drawing Review - Shop drawings are produced to assure compliance with the contract. Drawings must be reviewed by the Owner/Architect/Contractor, or other appropriate owner's representative. If drawings are correct, mark them as such; if incorrect, note corrections to be made and return to KI for corrections. Any deviations from the contract included in the shop drawing must be approved in writing from the Owner/Architect/Contractor. Drawing must be signed by authorized personnel including title, company or affiliation, and date. When power is specified, all locations of electrical and data infeeds must be verified and approved by a signature on the drawings by the responsible party. Manufacture of product shown is not scheduled until drawing review is complete and an authorized signature is received.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Store delivered in clean, safe, dry area.

1.4 SCHEDULING

A. Schedule installation of items to occur after application of exposed finishes wherever installation will not damage exposed finish surfaces and completion of finishes will not impede installation.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer: KI

B. Product: Lancaster Auditorium Seating

C. Alternates or substitutes not accepted. “As Equal” products must be approved as meeting specification.

2.2 DESCRIPTION

A. Seating is available floor-mounted or riser-mounted, with common upright support assemblies and upholstered seat and back cushions. The fixed back accommodates three pitch positions at 16°, 19°, and 22°. The back cushion is protected by an injection-molded polypropylene back shroud. The seat cushion is counter-balanced with a gravity-lift to ensure an automatic return to a full fold position. Springs may be added as an option to provide a 3/4-fold to full-fold seat operation. Sloped floors will be accommodated (up to 9° slope).

B. Product Benefits:

- Gravity-lift seat return maintains constant seat return.
- Five nominal seat-spacing widths are available for comfort and sight lines (20", 21”, 22”, 23”, 24").
- 33.5" back height provides upper back support in addition to lumbar support.
- Polypropylene seat and back shrouds provide maximum strength and durability. Optional wood back panels enhance aesthetics.
- One-motion tablet arms provide safety and ease in exiting.
- Power & Data or Power & USB module and distribution system provides convenient Power & Data or Power & USB access directly underneath the armcap for laptop users. All wiring is enclosed in tamper-resistant shrouds. Power & Data or Power & USB systems are retrofittable at a later date if needed.
- Powder-coated frames provide maximum durability.

2.3 CONSTRUCTION

A. Seating will be manufactured in three seat- and back-widths to accommodate five nominal seat-spacings of 20", 21”, 22", 23 and 24" seat-centers. Sight lines will be accommodated as indicated on the seating plans. Seating with left- or right-hand tablet arms will be manufactured to accommodate 20", 21”, 22", 23 and 24" seat center spacings.

B. Back Cushion Assembly
Structural back consists of a 7-ply, 7/16" molded plywood inner structure bonded within 2" urethane foam. Foam density is 1.8 lb per cubic foot and 36 lb I.F.D. The upholstery fabric is bonded to the foam and attached through C-Gex® upholstery methods. An injection-molded polypropylene back shroud wraps around the edge of the inner structure board and the foam. The fixed back assembly with integral shroud is mounted to the uprights by four screws bolted through the structural 14-gauge steel inner back brackets. Three pitch options are available, 16°, 19° and 22°, to be set during installation. Overall back height is 33.5”.

An optional wood back panel is designed to be 3/8" thick with Gum veneer core and 1/16" Maple veneer faces. Outer face of wood back panel is grade A veneer. The back panel will attach to the inner structure board and the foam with hidden keyhole slot brackets and 1/4-20 x 1-1/4" Torx screws. The wood back panel assembly attaches to the uprights by four screws bolted through the structural 14-gauge steel back brackets. The wood back extends above the upholstered foam cushion by approximately 1/2" thereby protecting the fabric, and extends below the seat at the bottom to protect the seat cushion. Wood back panels are not available for use with Power & Data or Power & USB. Wood backs are available in stain finishes according to standard color offering.

An optional high wood back panel will be 1/2" thick with Gum veneer core and 1/16" Maple veneer faces. Outer face of wood back panel is grade A veneer. The back panel attaches to the inner structure board and the foam with hidden keyhole slot brackets and 1/4-20 x 1-1/4" Torx screws. The wood back panel assembly attaches to the uprights by four screws bolted through the structural 14-gauge steel back brackets. The wood back extends above the upholstered foam cushion by approximately 1/2" thereby protecting the fabric, and extends below the seat at the bottom to protect the seat cushion. Wood back panels are not available for use with Power & Data or Power & USB options. Wood backs are available in stain finishes according to standard color offering. Overall back height is 38".

Note: Natural wood and wood veneers may have variations in pattern, grain, and coloring that can produce inconsistencies in the finished product. The inconsistencies may show up as dark patches or lines, color variations between light and dark, and various grain patterns. These variations are normal and cannot be avoided.

C. Seat Cushion Assembly

The seat assembly is constructed of an inner structure consisting of 14-gauge steel ring spanned with UltraFlex elastic webbing, covered with 3" molded urethane foam cushion. Foam density is 3.0 lb per cubic foot and 35 lb I.F.D. The upholstery fabric will be placed around the seat foam and stapled to a molded plastic upholstery board. The bottom is covered by an injection-molded polypropylene seat shroud. All pivoting and positioning are accomplished within the seat cushion assembly, thereby eliminating all pinch points.

An optional acoustical seat shroud consists of an injection-molded polypropylene seat shroud with 0.50" diameter holes spaced 1" apart on the center, flat portion of the shroud. A polyether convoluted foam is placed between the inner structural board and the outer acoustical seat shroud for sound absorption. The foam is nominal 1/2" to 1" thick and "charcoal" in color. The NRC rating is .050.

Flammability Rating

Lancaster upholstered products are manufactured to meet TB 117-2013 flammability testing requirements. Products will be labeled to indicate if flame retardant chemicals are used in the fabrics and foam.

Lancaster products can be manufactured to meet TB-133 flammability testing requirements. Changes in materials may be made and restrictions placed on fabric selection and product options. Products manufactured with this option will be labeled accordingly.

D. Seat Pivot Assembly

Seat pivot will be an integral part of the seat assembly. The seat pivots on a 3/4" diameter steel tube using oil free, self-lubricating, plastic bearings, joined to the seat ring by die-formed 11-gauge steel housings. Brackets made of 11-gauge formed steel and welded to the upright tubes support the seat assembly. Seat assembly is fastened to the upright brackets by 3/8" bolts. The seat return will be a gravity-lift which automatically returns the seat to a full fold position. Spring steel bracket may be added as an option to provide a 3/4-fold to full-fold position.

E. Uprights

Floor-mounted uprights are 14-gauge 1” x 3” rectangular steel column welded to an 11-gauge back plate with a 14-gauge steel top cap. The floor plate will be 14-gauge, 2.5” x 7.5” floor plate attached to the upright by a concealed weldment. Finish to be powder-coated according to standard color offerings.

Riser-mounted uprights are 14-gauge steel 1” x 3” rectangular steel column welded to an 11-gauge back plate with a 14-gauge steel top cap. The riser plate will be 1/4” steel, 4.25” x 4.25” plate welded to the upright. Finish to be powder-coated according to standard color offerings.

F. Armcap

Plastic armcap is mounted on a 14-gauge steel support, 1" wide by 10" long and welded to the upright by a concealed weldment. Each armcap is injection-molded engineering grade thermoplastic, 2-5/16" wide by 11-1/2" long and attached to the armcap support with four concealed screws. A flatter armcap with 17” length dimensions as above will be specified with the tablet arm. All plastic armcaps include an oval inset at the back of the armrest for optional row markers.

Optional wood armcaps are machined 2-5/16” wide by 11-1/2” long and attached to the armcap support with four concealed screws. A flatter armcap with 17” length dimensions as above will be specified with the tablet arm. Wood armcaps can include pilot holes for the installation of optional row markers, when specified.

G. Cupholder Armcap - Plastic

Plastic Cupholder is constructed of high-density polyethylene, 2" x 13-1/4" with a 3-3/4" diameter cupholder, molded into one integral unit. Will be sized to accept standard cup sizes and 12oz. cans with bottom element for support. Cannot be specified with tablet arms, Power & Data or Power & USB options.

Cupholder Armcap - Wood

Wood cupholder is constructed of White Oak or Maple wood, 4" x 14" with a 2.69" diameter cupholder, formed into one integral armcap unit. Will be sized to accept standard cup sizes and 12oz. cans. Cannot be specified with tablet arms, Power & Data or Power & USB options.

H. Tablet Arm

Tablet is self-storing, gravity-activated one-motion tablet arm, consisting of a storable writing surface constructed of a core of 15 mm thick Baltic Birch plywood core, .040" high-pressure laminate on the face and .020” backer sheet measuring 10” x 16” (137 sq. in.) capable of supporting a laptop computer. The tablet arm mechanism consists of a pivot arm, pivot mount bracket and support bracket constructed of 11-gauge steel with controlled 90° side-to-side rotation and 86° up-and-down rotation. Tablet arm will store between the seats, without interfering with the seat.

I. Aisle Light

LED aisle lights are installed inside a molded plastic rectangular housing approximately 1” high by 3-3/8” wide that is mounted to the outside of an end panel, approximately 11-1/2” off the floor on flat floors. Wiring for the light feeds down through the upright tube and out the inside of the upright, near the foot plate. Aisle light wiring is hard wired to the building source by a certified electrician.

A 12VDC class II power supply is required for the LED aisle lights. KI provides two power supply options: A 30 watt transformer that can support a minimum of four aisle lights and a maximum of 112 aisle lights, and a 60 watt transformer that can support a minimum of eight aisle lights and maximum of 225 aisle lights. A 12VDC light dimmer, that works with both the 30 watt and 60 watt transformers, is available as well.

Available with LED light tubes.

LED Aisle Light

Light Size = 3” long
Voltage = 12 VDC
Current per lamp = 0.02 amps
Lamps per aisle light = 3
Power per aisle light = .24 watts
LED Color Temperature = 6250k Cool White
Operating lamp life = 40,000 hours

Candlepower
At floor, under light = 2.4

Wire: 22-gauge, 2-conductor multi-strand copper, black jacket, copper+ and silver-, 72” long.

J. Decorative End Panels – Recommended for All Aisle Ends

Plastic end panel is injection-molded polypropylene, attached to the upright with one 14-gauge U-shaped bracket and four screws. Not available on Designated Aisle Seat (ADA Swing Arm).

Laminate end panel is 3/8" thick MDF particleboard core with .040” high-pressure laminate on both sides, attached to uprights with one 14-gauge bracket and four screws.

Wood end panel is 15 mm thick Baltic Birch plywood core with veneer on both sides, stained to standard finish specifications. Edges are stained to match veneer faces.

K. Seat Numbers

Adhesive-backed elliptical shaped seat numbers, 0.78” tall by 1.18” wide, are available for application into elliptical shaped recesses on the front lips of the plastic seat shrouds. Adhesive-backed seat numbers are available in a Lexan film material in cool grey color, aluminum in silver color, or aluminum in gold color.

L. Row Markers for Plastic Armcaps

Adhesive-backed elliptical shaped row markers, 0.78” tall by 1.18” wide, are available for application into elliptical shaped recesses atop plastic arm caps. Adhesive-backed row markers for plastic armcaps are available in a Lexan film material in cool grey color, aluminum in silver color, or aluminum in gold color.

M. Row Markers for Wood Armcaps

Elliptical shaped row markers, 0.78” tall by 1.18” wide, are available for application atop wood armcaps. When applicable, the wood armcaps will have two pilot holes for securing the row markers with two small brads. Row markers for wood armcaps are available in aluminum in silver color, or aluminum in gold color.

N. Designated Aisle Seat - ADA Swing Arm

Armcap support is hinged at rear to allow armrest to flip up, providing easy access for limited mobility occupants. Available with laminate or wood end panels and aisle lights. Includes row markers with ADA symbol mounted on upright.

O. ADA Removable Units

Chairs requiring mobility for handicapped access are mounted to a 7-gauge welded frame and include four glides per upright. One-, two- and three-seat units are available. Not available with power or aisle light options.

P. Power & Data Module and Distribution System

Product is designed to bring Power & Data from the building power source to a position directly below the armcap to accommodate the requirements of notebook computers in a temporary use situation. The receptacle and data port(s) will not extend beyond the width of the armcap and is mounted at an angle so plugs will not interfere with the occupant. All wires and cables are concealed with plastic covers. Wires are routed to the module through an infeed channel attached to an upright, concealed with plastic side covers and connected to the five-wire, three-circuit harness system (each circuit provides 20 amps). Fully enclosed wireway covers protect all wires at the bottom of the back shroud as they are routed and connected to each seat. The module accommodates one simplex receptacle and a mounting bracket for one or two data jacks per seat. The data jack bracket accommodates various connectors (data jacks are not provided). One distribution harness is designed to feed two seats. A data infeed is provided to conceal the entry of data wires. Power & Data option is available on all seat sizes. All electrical components are installed on site with hardware provided. Power & Data system is UL Listed as an accessory for use with Lancaster.

1) Power & Data Module

The receptacle and single data port module are constructed of a molded polycarbonate body, riveted to a galvanized steel top mounting bracket. The placement will be at a slight angle away from the seat to allow easy plug in and removal of plugs. A second data port can be specified which will be located directly below the first data port. Data ports accommodate various data connectors. The data jacks must be provided by the customer. Power & Data outlets are located on the right-hand side only (when seated).

2) 5-Wire Harness – Power & Data

The 5-wire distribution harness distributes power between the Power & Data modules and accepts an infeed harness. Each harness consists of a three-way housing on one end and a single connector on the other end. All harnesses and connections are fully enclosed in plastic troughs.

3) Wireway Cover – Power & Data

The harness will be enclosed in the plastic cover mounted at the bottom of the back shroud. The wireway covers are constructed of vacuum-formed polystyrene. The cover is attached to the bottom of the back shroud with two #8 x 1/2” screws provided. The cover measures a minimum of .056” thick with a UL 94-HB minimum flame rating. The trough accommodates twenty-four Category 5 or Category 7 four-pair twisted wires.

4) Power Infeed – Power & Data

The 5-wire power infeed harness with 3-way modular connector end consists of three 12-gauge hot wires, one 12-gauge ground wire and one 10-gauge neutral wire encased in flexible conduit with a 30” length of five exposed wires. The harness with exposed wires originates from the seat wireway, routes into the power infeed box (behind the end upright), through a 90° metal connector inside the box and out through a 1/2" rigid straight coupler at the left-hand, exterior of the box (when seated). A 24” length of 1/2" liquid-tight conduit is supplied (to be cut to size) to house the wires and connect between the rigid straight coupler and the building source power junction box on the floor, under the seat. The building source power junction box must be located under the end seat, ideally 10” to 16” from the end upright, and 2” to 4” from the front-to-back centerline of the upright base. One Power infeed can support up to three circuits and 39 seats, with a maximum of 13 seats per circuit, depending on the available power source (estimated usage of 1.25 amps per outlet). End panels are required on aisle ends when Power & Data modules are specified.

5) Retrofit of Power & Data

The Power & Data system is retrofittable to existing Lancaster installations with polypropylene back shrouds.

Q. Power & USB Module and Distribution System (810 System)
Product is designed to bring Power & USB from the building power source to a position directly below the armcap, to accommodate the requirements of notebook computers in a temporary use situation. The Power & USB module is mounted at an angle so plugs will not interfere with the occupant. All source power wires and cables are concealed with plastic covers. Wires are routed to the module through an infeed channel attached to an upright, concealed with plastic side covers and connected to the 8-wire, four-circuit harness system (each circuit provides 20 amps). Fully enclosed wireway covers protect all wires at the bottom of the back shroud as they are routed and connected to each seat. One distribution harness is designed to feed two seats. Power & USB option is available on all seat sizes. All electrical components are installed on site with hardware provided.

1) Power & USB Module (810 System)
The Power & USB module is 4.05" tall by 2.77" deep by 1.69" wide. The module is constructed of polycarbonate and polypropylene with a 5VA flammability rating per UL 746C. Metal parts are pre-galvanized steel. The module has one simplex receptacle port (rated at 15 amps/125 volts), one USB-A and one USB-C port, 2.1 amps per port. The placement will be at a slight angle away from the seat to allow easy plug in and removal of plugs. The Power & USB modules are located on the right-hand side only (when seated).

2) 8-Wire Electrical Harness (810 System) – Power & USB
The 810 8-wire distribution harness of flexible conduit distributes power between the Power & USB modules and accepts a power infeed harness. Each infeed harness and module consists of single housing on one end and the jumper harness consists of single housing on both ends. A four-way connector (quad block) is used to connect the infeed, jumper harness and module.

3) Wireway Cover – Power & USB
The harness will be enclosed in the plastic cover mounted at the bottom of the back shroud. The wireway covers are constructed of vacuum-formed polystyrene. The cover is attached to the bottom of the back shroud with two #8 x 1/2" screws provided. The cover measures a minimum of .056" thick meeting UL 94-HB minimum flame rating.

4) Power Infeed (810 System) – Power & USB
The 810 8-wire power infeed harness with single modular connector end consists of four 12-gauge hot wires, two 12-gauge ground wires and two 10-gauge neutral wires encased in flexible conduit with a 30" length of five exposed wires. The harness with exposed wires originates from the seat wireway, routes into the power infeed box (behind the end upright), through a 90° metal connector inside the box and out through a 1/2" rigid straight coupler at the left-hand, exterior of the box (when seated). A 24" length of 1/2" liquid-tight conduit is supplied (to be cut to size) to house the wires and connect between the rigid straight coupler and the building source power junction box on the floor, under the seat. The building source power junction box must be located under the end seat, ideally 10" to 16" from the end upright, and 2" to 4" from the front-to-back centerline of the upright base. One Power infeed can support up to four circuits and 52 seats, with a maximum of 13 seats per circuit, depending on the available power source (estimated usage of 1.25 amps per outlet). End panels are required on aisle ends when Power & USB modules are specified.

Retrofit of Power & USB
The Power & USB system is retrofittable to Lancaster installation with polypropylene back shrouds.

Note: Power & Data and Power & USB systems are not interchangeable and cannot be used together.

2.4 FINISHES
Powder-coated finish is standard on all frames. Standard KI fabrics available; COM (customer's own material) fabrics require factory approval. All finishes and colors to be selected by architect. Refer to KI Color Addendum for standard finishes. Custom colors and finishes available; contact factory.

2.5 TEST REQUIREMENTS

"Lancaster" seating is designed and manufactured in compliance with the intent of ANSI/BIFMA X5.4. Seating exceeds all applicable BIFMA performance test criteria. Lancaster Seating is “UL Classified for Electrical Hazards Only” in the Commercial Seating category per UL 1286 and CAN/CSA C22.2 No. 203. Lancaster is SCS Indoor Advantage™ Gold certified.

PART 3 EXECUTION

3.1 PREPARATION

A. Coordination details with other work supporting, adjoining, or otherwise contracting items as required to insure proper installation.

B. Examine construction to verify that:

1) Dimensions are correct to manufacturer’s specifications.

C. Do not install items until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install items in strict accordance to manufacturer’s Assembly Instructions and approved Shop Drawings.

B. FLOOR MOUNTING REQUIREMENTS

Minimum Floor Construction Required for Upright Installation

1) Concrete Floors
   - 3000 psi concrete compressive strength
   - 3” thick free of obstructions for 1-1/2”
   - 4” thick free of obstructions for 2-1/2” for riser mount
   - Riser to be plumb within 1/8 degree
   - Minimum anchor embedment 1-1/2” for floor mount or 2-1/2” for riser mount
2) Wood Floors
   - Minimum two layers of 3/4” thickness tongue & groove
   - APA rated grade plywood
   - Allow minimum embedment 1-1/2” with lag screws
   - Use toggle bolt if less than 1-1/2” embedment
3) Raised-Access Floors
   - Minimum rating of 125 PSF
   - Must be installed with grade 3 or better 3/8” diameter bolt, washers and nuts

Note: Warranty null and void if KI product is installed on flooring not meeting minimum structural requirements stated above. For non-typical floors not stated above, contact KI.

Floor Fastener Requirements

1) Concrete Floors
   - 1/4” x 2-5/8” Hilti KH-EZ
   - Max. torque: 18 ft. lbs.
   - Two anchor assemblies required per base
2) Concrete Risers
   - 1/4” x 3” Hilti KH-EZ
   - Max. torque: 18 ft. lbs.
   - Two anchor assemblies required per plate
3) Wood Floors
   - 3/8” x 2-1/2” Hex washer head tapping screw
   - Two screw assemblies required per base
4) Raised-Access Floors
   - 3/8-16 x 2-1/2” Grade 3 bolt (2-1/2” minimum length), 3/8” Grade 3 washer (quantity of 2), 3/8” Grade 3 lock washer, 3/8-16 Grade 3 nut
   - Two bolt assemblies required per base

Note: Floor mounting anchors are provided as specified with every order.