

# PRODUCT SPECIFICATIONS ■

## Concerto® Comfort Fit Auditorium Seating

April 2019

### TECHNICAL SPECIFICATIONS

#### Product Description

Concerto's "Comfort Fit" version provides the same construction and materials as standard Concerto but with increased leg room and seated clearance. This is accomplished by increasing the armcap height by 2", to 26" above the floor; and moving the tablet arm out 2", to create 16" of seated space from the center of the back cushion to the inside edge of the tablet arm. All other construction details remain the same. All options and accessories are available on the "Comfort Fit" model.

#### Product Benefits

- Gravity Lift Seat return maintains constant seat return with no springs to fatigue or fail.
- Six seat-spacing widths are available for comfort and sight lines (19", 20", 21", 22", 23" & 24").
- 2" or 3" seat and back foam options for a choice in comfort.
- 34" 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.
- Two styles of one motion tablet arms (large and medium) provide safety and ease in exiting.
- Optional 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 system is retrofittable at a later date if needed.
- Armrests at 26" height from floor to provide more leg room for tablet users.
- 16" of seated room between back cushion and inside of tablet board.
- Powder-coated frames provide maximum durability.

#### General Conditions

##### Compliance

"Concerto" seating is designed and manufactured in compliance with the intent of ANSI/BIFMA X5.4. Seating will exceed all applicable BIFMA performance criteria. Concerto Seating is "UL Classified for Electrical Hazards Only" in the Commercial Seating category per UL 1286 and CAN/CSA C22.2 No. 203. Concerto is Greenguard Indoor Air Quality certified.

##### 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.

##### 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, 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. Manufacture of product shown is not scheduled until drawing review is complete and owner's authorized signature is received.

##### Scope

Concerto Comfort Fit Auditorium Seating is manufactured by KI, Bonduel, WI. Seating will be floor mounted with common upright support assemblies with upholstered seat and back cushions. The fixed back accommodates three pitch positions at 16°, 20° and 24°. The seat cushion is counterbalanced with a gravity lift to ensure automatic return to vertical position when the seat is unoccupied. Sloped floors will be accommodated.

##### Sizes

Seating will be manufactured in three seat- and back-widths to accommodate six seat-spacings of 19", 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.



## TECHNICAL SPECIFICATIONS (cont.)

### Materials

#### Back Cushion Assembly

Structural back is constructed of a 7-ply,  $\frac{7}{16}$ " molded plywood inner structure bonded to 2" or 3" urethane foam. Foam density is 3.0 lb per cubic foot, 38 lb I.F.D. for 2" and 1.8 lb per cubic foot, 36 lb I.F.D. for 3". The upholstery fabric will be bonded to foam and attached through C-Gex® upholstery methods. Adhesion of fabric to foam is dependent upon fabric type. 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 11-gauge steel inner back brackets. 20", 22" and 24" backs include a plastic spacer mounted between the back bracket and the uprights, and are held in place with rivets.

An optional wood back panel is  $\frac{3}{8}$ " thick, with Gum veneer core and  $\frac{1}{16}$ " Maple veneer faces. Outer face of wood back panel is Grade A. The back panel will attach to the inner structure board and the foam with hidden keyhole slot brackets and  $\frac{1}{4}$ " - 20 x  $1\frac{1}{4}$ " Torx head bolts. The wood back panel assembly attaches to the uprights by four screws bolted through the structural 11-gauge steel back brackets. The 20", 22" and 24" backs include a plastic spacer mounted between the back bracket and the uprights and held in place with rivets. The wood back extends above the upholstered foam cushion and allows for Power & Data or Power & USB distribution when required.

**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.

#### Seat Cushion Assembly

The seat assembly is constructed of a compound curve inner structure consisting of 7-ply,  $\frac{7}{16}$ " molded plywood board with waterfall. The seat board counterbalance will be bolted in place inside the seat assembly. The seat board is bonded to a 2" or 3" urethane foam cushion. Foam density is 3.0 lb per cubic foot, 30 lb I.F.D. for 2" and 1.8 lb per cubic foot, 35 lb I.F.D. for 3". The upholstery fabric will be bonded to foam and attached through C-Gex® upholstery methods. The bottom is covered by an injection-molded polypropylene seat shroud. All pivoting and positioning is to be 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 will be nominal  $\frac{1}{2}$ " to 1" thick and "charcoal" in color. The NRC rating is .050.

#### Flammability Rating

Concerto 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.

#### Seat Pivot Assembly

Seat pivot is an integral part of the seat assembly. Pivot includes a full width axle of  $\frac{5}{8}$ " diameter cold-rolled steel, with welded 12-gauge drawn steel pivot stop cams and 10-gauge formed steel end brackets. The seat pivots on self-aligning acetal bearings, joined to the seat board by die-formed 14-gauge steel housing. Brackets, made of 12- and 10-gauge formed steel and welded to the upright tubes support the seat assembly. Seat assembly is fastened to upright brackets by two screws per seat.

#### Uprights

Floor mounted uprights are constructed of 16-gauge steel round dual supports, 1.5" diameter, welded to an 11-gauge steel,  $2\frac{5}{8}$ " x  $10\frac{1}{8}$ " floor plate by a concealed weldment. Finish to be powder-coat painted according to standard color offerings. Riser-mounted uprights are constructed of 14-gauge steel round dual supports,  $1\frac{1}{2}$ " diameter, welded to a  $3$ " x  $5\frac{1}{2}$ " x  $\frac{1}{4}$ " steel riser plate. Finish to be powder-coat painted according to standard color offerings. Riser-mounted uprights are not available with Power & Data or Power & USB options. Finished height of upright with plastic armcap is 26" above floor.

#### Armcap

Plastic armcap is mounted on a 14-gauge steel support,  $2\frac{5}{8}$ " wide by  $10\frac{1}{8}$ " long, which is welded to the upright by a concealed weldment. Armcap is injection-molded engineering grade thermoplastic,  $2\frac{7}{8}$ " wide by  $10\frac{3}{8}$ " long and attaches to the armcap support with two concealed screws. A flatter armcap with same dimensions as above will be specified with the large tablet arm.

## TECHNICAL SPECIFICATIONS (cont.)

Optional wood armcaps will be machined 2<sup>3</sup>/<sub>4</sub>" wide by 10<sup>1</sup>/<sub>4</sub>" long, and are attached to the armcap support with two concealed screws. Wood armcaps can be specified with tablet arms.

### Cupholder Armcap - Plastic

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

### Cupholder Armcap - Wood

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

### Tablet Arm - Large

Tablet unit is self-storing, one-motion tablet arm, consisting of a storable writing surface constructed of a 13-ply (18 mm) Baltic Birch plywood core, .040" high-pressure laminate on face and .040" HPL backer sheet, measuring 11<sup>1</sup>/<sub>2</sub>" x 15<sup>1</sup>/<sub>4</sub>" (202 sq. in.) (capable of supporting a laptop computer). Minimum row-to-row spacing is 38". The tablet arm mechanism will consist of a pivot arm, pivot mount bracket and support bracket constructed of 7-gauge steel with controlled 90° side-to-side rotation and 84° up-and-down rotation. The position of the tablet arm allows for 16" of seated space between the center of the back foam cushion and the inside edge of the tablet board. The tablet arm will store underneath the seat at a slight angle, without interfering with the seat.

### Tablet Arm - Medium

Tablet unit is self-storing, one-motion tablet arm, consisting of a storable writing surface constructed of a 13-ply (18 mm) Baltic Birch plywood core, .040" high-pressure laminate on face and .040" HPL backer sheet, measuring 10<sup>1</sup>/<sub>2</sub>" x 13<sup>1</sup>/<sub>4</sub>" (159 sq. in.) with a 6<sup>5</sup>/<sub>8</sub>" radius on outside corner to allow a minimum row-to-row spacing of 36". The tablet arm mechanism will consist of a pivot arm, pivot mount bracket and support bracket constructed of 7-gauge steel with controlled 90° side-to-side rotation and 84° up-and-down rotation. The position of the tablet arm allows for 16" of seated space between the center of the back foam cushion and the inside edge of the tablet board. The tablet arm will store underneath the seat at a slight angle, without interfering with the seat.

### Aisle Light

Aisle lights are mounted to the underside of the armcap support (with or without an end panel). Aisle light wiring is hard wired to the building source by a certified electrician. Transformers are not provided.

**Note:** When aisle lights are used with tablet arms, the tablet arm will block the light when the tablet is in the in-use position.

	Incandescent Aisle Light	LED Aisle Light
Light Size	6" long	3" long
Voltage	24 VAC	12VDC
Current per lamp	0.04 amps	0.02 amps
Lamps per aisle light	4	3
Power per aisle light	3.6 watts	.24 watts
LED Color Temperature	Not Applicable	6250k Cool White
Operating lamp life	30,000 hours	40,000 hours
Candlepower	@ 5" = 2.4	N/A
	@ 10" = 0.9	N/A
	@ 15" = 0.5	N/A
	@ 20" = 0.3	N/A
	At floor, under light = 0.6	At floor, under light = 2.4
Wire	25G AWG insulated copper wire, 48" long	22-gauge, 2-conductor multi-strand copper, black jacket, copper + and silver -, 72" long. Right side power feed.

**Note:** A 12 VDC class II power supply is required for LED aisle lights. (Power supply not supplied by KI.)

## TECHNICAL SPECIFICATIONS (cont.)

### Decorative End Panels

Optional laminate end panel consist of 1/2" thick particleboard core with .040" high-pressure laminate and .040" thick backer sheet, attached to uprights with six 16-gauge clips and six screws.

Optional steel end panel will be 16-gauge steel welded to the inside of the uprights and powder-coat painted to match the uprights. Not available with Power & Data or Power & USB options.

Optional wood end panel will have same construction as laminate panel, with veneer over particleboard core.

**Note:** Decorative end panels are required with Power & Data or Power & USB options.

### 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.

### 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 armcaps. 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.

### 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.

### Designated Aisle Seat - ADA Swing Arm

Armcap support is hinged at the rear to allow armrest to flip up, providing easy access for limited mobility occupants. Includes marker with ADA symbol mounted on upright.

### 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.

## Optional Power & Data

### 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 situation. The receptacle and data port(s) do not extend beyond the width of the armcap and do not interfere with the seat return. All wires and cables will be concealed with plastic covers. Wires are routed to the module through the center of an upright, concealed with plastic side covers and are 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 distributor harness is designed to feed two seats. A data infeed side cover 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 Concerto.

### Power & Data Module

The receptacle and single data port module is constructed of a molded polycarbonate body, riveted to a galvanized steel top mounting bracket. The placement is at a slight angle toward 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 accommodates various connectors. The data jacks must be provided by the customer. Power & Data outlets are located on the right-hand side only (when seated).

### 5-Wire Harness - Power & Data

The 5-wire distribution harness distributes power between the Power & Data modules as well as accepting an infeed harness. Each harness consists of a 3-way housing on one end and a single plug on the other end. All harnesses and connections will be fully enclosed in plastic troughs.

## TECHNICAL SPECIFICATIONS (cont.)

### Wireway Cover - Power & Data

The harness is to 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 rating. The trough is designed to accommodate twenty-four Category 5 or Category 7 four-pair twisted wires.

### Half- and Full-Height Side Covers - Power & Data

Half-height side covers are provided for uprights between seats to conceal wires to Power & Data modules. Side covers are constructed of vacuum-formed polystyrene and measure a minimum of .056" thick, meeting UL 94-HB. Half-height side covers are 16" high, leaving 6 1/4" of open space above the bottom mounting (foot) plate, on a level surface. Full-height covers of the same construction are provided at power infeed locations and data infeed locations. Side covers are attached with two or four #8 x 3/8" screws provided. Optional full-height side covers can be specified at aisle ends.

### 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 end upright between an end side cover and power infeed side cover, goes through a 90° metal connector inside the covers and out through a 1/2" rigid straight coupler at the left-hand, exterior of the power infeed side cover (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.

### Retrofit of Power & Data

The Power & Data system may be retrofitted to Concerto product shipped after March, 1998.

## Optional Power & USB

### Power & USB Module 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 will not extend beyond the width of the armcap and 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.

### 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 15-amp simplex receptacle and two 2.1 amp USB ports. 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).

### 8-Wire Electrical Harness (810 System) - Power & USB

The 810 8-wire distribution harness of flexible conduit distributes power between the power & USB modules as well as accepts a power infeed harness. Each infeed harness and module consists of single housing on one end and the jumper harness consist of a single housing on both ends. A four-way connector (quad block) is used to connect the infeed, jumper harness and module. All harnesses and connections will be fully enclosed in plastic troughs.

### Wireway Cover - Power & USB

The harness is to 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 rating. The trough is designed to accommodate twenty-four Category 5 or Category 7 four-pair twisted wires.

## TECHNICAL SPECIFICATIONS (cont.)

### Half- and Full-Height Wireway Covers - Power & USB

Half-height side covers are provided for uprights between seats to conceal wires to Power & USB modules. Side covers are constructed of vacuum-formed polystyrene and measure a minimum of .056" thick, meeting UL 94-HB. Half-height covers are 16" high, leaving 6 1/4" of open space above the bottom mounting (foot) plate, on a level surface. Full-height side covers of the same construction are provided at power infeed locations. Side covers are attached with two or four #8 x 3/8" screws as provided. Optional full-height side covers can be specified at aisle ends.

### 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 end upright between an end side cover and power infeed side cover, goes through a 90° metal connector inside the covers and out through a 1/2" rigid straight coupler at the left-hand, exterior of the power infeed side cover (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 will typically 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 Concerto product shipped after March, 1998.

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

## Floor Requirements

### Concrete Floors

- 3000 psi concrete compression 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" or 2 1/2" for riser mount.

### Wood Floors

- Minimum two layers of 3/4" thickness tongue and groove
- APA rated grade plywood
- Allow minimum embedment 1 1/2" with lag screws
- Use toggle bolt if less than 1 1/2" embedment

### 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 listed above.

## TECHNICAL SPECIFICATIONS (cont.)

### Floor Fastener Requirements

#### Concrete Floors

- $\frac{1}{4}$ " x  $2\frac{5}{8}$ " Hilti KH-EZ
- Max. torque: 18 ft. lbs.
- Two anchor assemblies required per base

#### Concrete Riser Mount

- $\frac{1}{4}$ " x 3" Hilti KH-EZ
- Max. torque: 18 ft. lbs.
- Two anchor assemblies required per base

#### Wood Floors

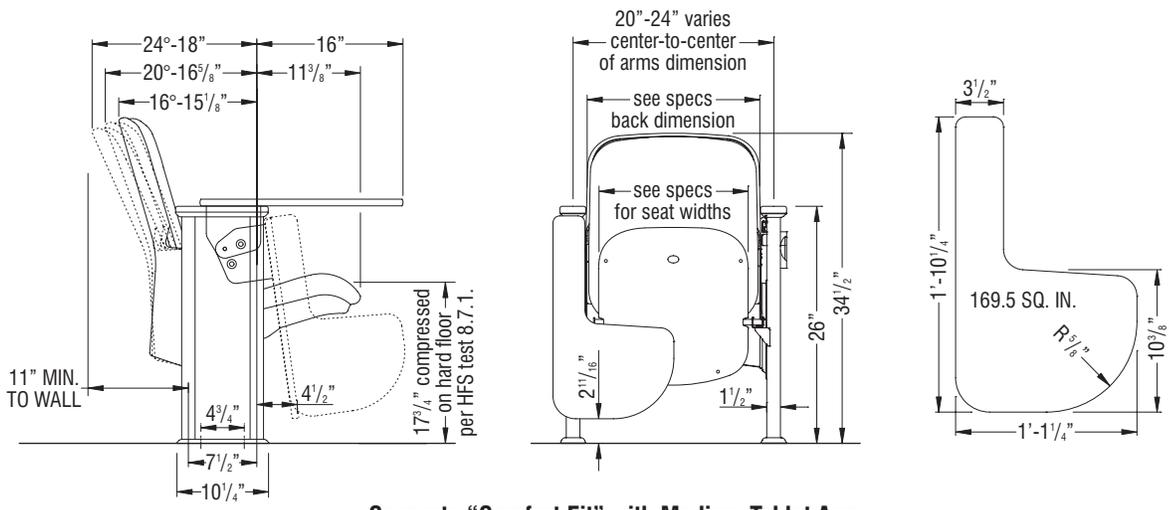
- $\frac{3}{8}$ " x  $2\frac{1}{2}$ " Hex washer head tapping screw
- Two bolt assemblies required per base

#### Raised-Access Floors

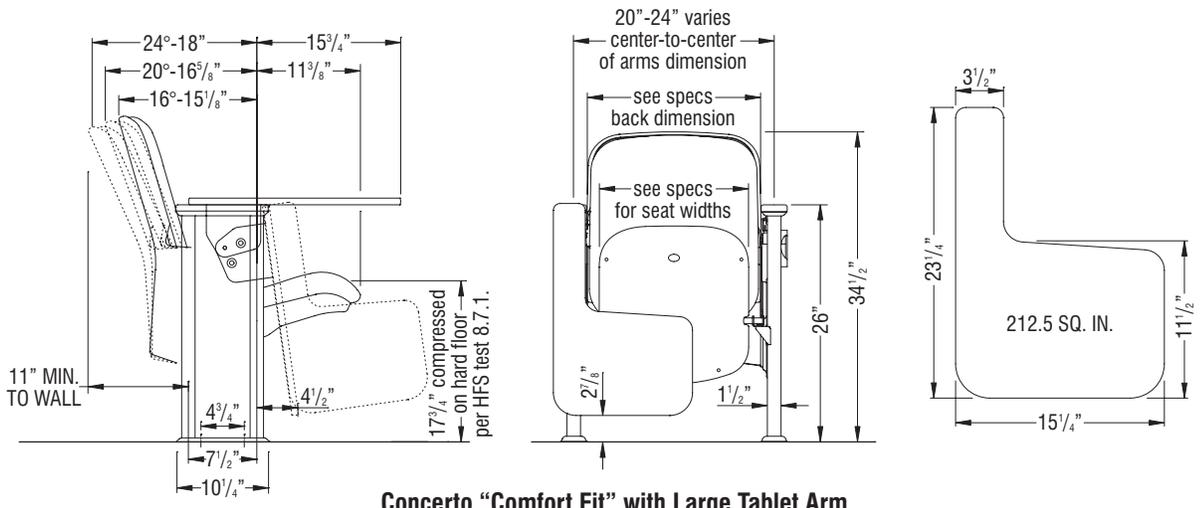
- $\frac{3}{8}$ -16 x  $2\frac{1}{2}$ " Grade 3 bolt ( $2\frac{1}{2}$ " minimum length),  $\frac{3}{8}$ " Grade 3 washer (quantity of 2),  $\frac{3}{8}$ " Grade 3 lock washer,  $\frac{3}{8}$ -16 Grade 3 nut
- Two bolt assemblies required per base

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

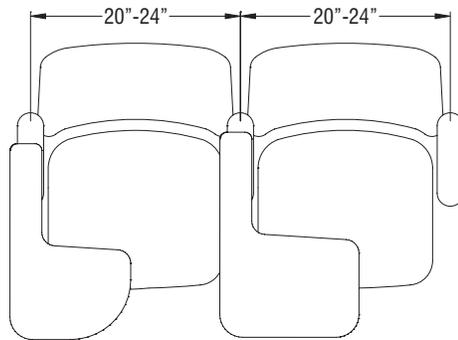
**DIMENSIONS**



**Concerto "Comfort Fit" with Medium Tablet Arm**



**Concerto "Comfort Fit" with Large Tablet Arm**



**Concerto "Comfort Fit" with Medium and Large Tablet Arms**