UNIVERSITY 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 fixed swivel seats on swing arms including attachment, or other work required for installation unless otherwise noted.

B. Related Sections

1) Section 26 00 00: Electrical
2) Floor mounted anchors are included for installation on standard floor conditions.
3) Data/Communications cabling and jacks not included.

1.2 SUBMITTALS

A. 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.

B. 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.

C. 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, 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: University Seating

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

2.2 DESCRIPTION

A. Seating shall be the "University Seating" as manufactured by KI, Green Bay, WI.
Seating shall be floor-mounted with single or double swing arm bases to support seat shells and continuous table tops. Seat shells shall swivel for ease in entry and exit and shall have an automatic memory return. Table tops shall be continuous tops. An 8-wire, 4-circuit power distribution system shall be available to supply power and data to a surface-mounted module or to an under-surface power and data unit. Optional modesty panels are available. Sloped floors shall be accommodated.

2.3 CONSTRUCTION

A. Floor-mounted steel frames which support solid core continuous table tops with self-returning swivel seats and including but not limited to:

1) Table tops shall be 1-1/4” thick, warp-resistant construction with a center core of 1-1/8” thick particleboard, a minimum of 47 pounds PCF density to prevent warping.
2) K & V Tite Joint fasteners, hardwood spline, and steel splice plates shall be used to provide a virtual “seamless top”.
3) Edge options include 54B, 74P, 14S Wood and 34S Wood.
4) Options shall be available for user spacing by utilizing different swing arms and bases. Standard 27” swing arm spacing, extended 30” swing arm spacing, Basic and Select style bases with or without 4A base extension spacing.
5) Two base styles for a choice in aesthetics (Basic = Square; Select = Oval).
6) Chair options allow a choice in comfort and price levels.
7) Optional PowerUp power and data distribution system provides surface-mounted power and data access for laptop users. The 8-wire harness of flexible conduit shall distribute power between the power/data modules and the power infeed. The harness shall be enclosed in a plastic trough with a divider to separate power and communication or data cables.
8) Optional under-surface power and data provides a duplex receptacle and two data ports concealed in a plastic protective shroud and mounted underneath the surface between seats, opposite the base location. It shall utilize the same 8-wire distribution system as PowerUp.
9) Optional modesty panels shall be available in acrylic, laminate, steel or wood veneer.
10) Powder-coated steel frames provide maximum durability.
11) UL Classified for electrical hazards only.
12) Fixed or height-adjustable seats. Height-adjustable seats are only available with Select style bases.

B. Frames (choose one)
“Basic” rectangular bases are constructed of 14-gauge seam-welded tubular steel, 2” x 4” from floor plate to junction box, 2” x 2” from junction box to table mounting plate, welded into an integral unit to accommodate slope floors from 0-8 degrees. Table mounting plate at the top of the base is 11-gauge, 6” x 8” die-formed steel plate with two oval holes, 3/4” x 1-1/2”, to allow for power and cable access and eight pierced holes to secure top to base with screws (furnished). Floor mounting flange is 11-gauge, 6” x 8” die-formed steel plate with 1/2” holes pierced in each corner for anchoring into floor. Base is secured to floor with four bolts for each base. Escutcheon covers constructed of molded plastic are supplied for each base and conceal anchor bolts. Designated power or data bases, as shown on the space plan, shall be specified with a 2” x 4” cutout on both sides of the base at the bottom to allow for power or communication/data cable access. Cutout shall

have a metal cover painted to match the base. Swing-away seat is mounted at end of horizontal beam 1-1/2" x 2", 11-gauge, hinged at cantilevered frame junction box. Construction is of die-formed, heavy-gauge collar with polyacetal copolymer thermoplastic bearings at 8-gauge die-formed steel junction box. Spring-activated return is completely enclosed; all moving parts are protected by covers to prevent injury. Swing beam collar with bushings is anchored in junction box with 1/2" shoulder bolt and lock nut. Fixed-height seats swivel on 3/4" diameter post welded to seat spider and inserted into 1-3/4" tubular column welded to 1-1/2" x 2", 11-gauge horizontal beam. Nylon upper cams and PBT lower cams control rotation and memory return with spring tension. Slots in column allow adjustment of the seat in the field to parallel the edge of the table top. Swivel mechanism, upper and lower cams, spring and interior of seam column are lubricated for rotation. Basic style bases with 4A extension spacing are bases that are set back 4" from the back edge of the table top allowing for more user space. The Basic style base remains the same, only the tree (weldment arm between the base and table top) is extended and angled at 24 degrees to allow the additional 4" spacing.

"Select" oval bases are constructed of 11-gauge seam-welded tubular steel, 1-1/2" x 2" from floor plate to junction box and 3.12" x 1.95" x 2mm oval tube from junction box to table mounting plate, welded into an integral unit to accommodate slope floors from 0-8 degrees. Table mounting plate at the top of the base is a 6" x 8" x 11-gauge die-formed steel plate with two oval holes measuring 3/4" x 1-1/2". These slots allow for power and cable access to the support. Eight pierced holes secure the base to the worksurface top with screws (furnished). Floor mounting flange is 6" x 8" x 11-gauge, die-formed steel plate with 1/2" diameter holes pierced in each corner for anchoring to floor. Each base is secured to the floor with four bolts. All bases allow access for either power or data/communication cables. Routing of these wires can be up through the floor beneath the center of the base or through the front wall of the base unit's molded plastic enclosure. Spring-activated returns control the swing-away seat which is mounted at the end of a sloped and tapered oval tube with measurements ranging from 1-1/2" x 2-1/4" to 1" x 1-1/2" x 14-gauge. Swing arm pivot tubes with molded bushings are anchored in junction box with high strength 1/2" diameter shoulder bolts secured by a locking hex nut. This entire pivot structure is enclosed by molded ABS covers including sliding plastic shields which cover all potential pinch points. Fixed-height seats swivel on 3/4" diameter post welded to seat spider and inserted into 1-3/4" diameter tubular column welded to the oval swing arm. Nylon upper cams and PBT lower cams control rotation and memory return with spring tension. Slots in column allow adjustment of the seat in the field to parallel the edge of the table top. Swivel mechanism, upper and lower cams, spring and interior of seam column are lubricated for rotation. Adjustable-height seats swivel on a pneumatic cylinder which, when unoccupied, self-returns to the highest forward position, maintaining consistent look throughout the room. Lever-controlled pneumatic height adjustment has infinite height selection within range. Select style bases with 4A extension spacing are bases that are set back 4" from the back edge of the table top allowing for more user space. The Select style base remains the same, only the tree (weldment arm between the base and table top) is extended and angled at 24 degrees to allow the additional 4" spacing.

C. Table Tops

Table tops shall be nominal 1-1/4" thick, warp-resistant construction and have a center core of 1-1/8" thick particleboard, minimum of 47 lbs. PCF density. The top surface shall be a minimum of .040" thick high-pressure laminate meeting NEMA standards and the bottom surface, a balanced .040" thick phenolic backer. Laminate and backing sheet shall be permanently bonded to particleboard core using cross-linking poly vinyl acetate (PVA) adhesive under continuous pressure in a hot press. Continuous table top joints shall be secured with a minimum of two mechanical fasteners equal to Knape & Voight #516, hardwood spline and heavy-gauge steel plate under joint. Tops shall have cutouts to accept PowerUp modules when PowerUp is specified.

Molded Edge Finishes:

- 54B: 1-1/4" Vinyl Bullnose
- 74P: 1-1/4" PVC Free
- 14S: 1-1/4" Wood Bullnose with Square Corner
- 34S: 1-1/4" Wood Band with Square Corner

D. Modesty Panels – optional (choose type)

1) Acrylic modesty panels shall be constructed of Acrylite – Satinice, GP and a finish of DP9 frosted both sides. Bracket mounting holes for straight and formed (bent/wrap) end panels to be located per engineering and space-planning drawings. Also, when formed end panels are required, the acrylic panels shall be formed per the engineering and space-planning drawings. Acrylic modesty panels used with continuous worksurfaces are segmented with 1/2" space between panels.
2) Laminate modesty panels shall be nominal .810" thick warp-resistant construction. Center core shall be 3/4" thick particleboard, minimum of 45 lbs. PCF density. The front surface shall be a minimum of .040" thick high-pressure laminate meeting NEMA standards and the back surface, .020" thick backing sheet.
   Laminate Edge Finishes:
   - 54B: 1-1/4" Vinyl Bullnose
   - 74P: 1-1/4" PVC Free
   - SE: Self Edge
3) Perforated steel or dimpled steel modesty panels shall be constructed of 14-gauge steel with 3/4" hems on horizontal edges. Perforated steel panels shall have 1/4" holes on 3/4" spacing. Dimpled steel panels shall have .08" deep dimples recessed on 1-1/2" spacing. End panels will consist of wrap-around continuous panels, curved to follow the 90 degree corner.
4) Perforated wood veneer modesty panels shall be .850" thick, warp-resistant construction. Center core shall be 3/4" thick particleboard, minimum of 45 lbs. PCF density. The front surface should be .080" thick veneer with black craft paper between core and veneer face. Backer sheet to be .020" thick.

   NOTE: Natural wood and wood veneers may have variations in pattern, grain and coloring that can produce inconsistencies in the finished product, which 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.

E. Shells (choose one)

1) 1000 Series®
   One-piece molded seats and back-rest design on high-impact polypropylene. Rolled edges and ribs under seat for extra strength. Nominal flex plus textured surfaces provide good posture support and discourage slouch seating. Four molded-in sills on underside of shell attach to spider with hi-lo screws. Upholstery available.
2) Apply™
   One-piece contoured wood shell is constructed of formed plywood, .460"-.480" thick, 7-ply maple and poplar construction. The mold-formed seat and back provide for comfort and strength. Top/bottom and front/back surfaces are vertical grade postforming, product type 335, high-pressure laminate thickness of .028", standard finish is #38 or #60 with a sanded edge with tung oil finish. The wood shell is supported by four plywood circular disks and 1/4-20 t-nuts bonded with construction grade adhesive and fastened to a 11-gauge steel seat spider with four 1/4-20 x 1/2" thread-locking screws. The chair perimeter is designed such that it provides a feature to support backpacks or tote bags. As an option, shells may be equipped with an upholstered seat pad. Urethane foam is attached to a formed plywood upholstery liner, then upholstered using a drawstring process. The foam is a nominal 1/2" thickness. The pad assembly is attached to the shell using 10-24 screws, engaging T-nuts in the liner.
3) Dorsal®
   Two-piece injection-molded thermoplastic seat and backrest with textured seat and backrest surface, on front only. Seat and backrests are joined by a maintenance-free steel hinge with integral spring mechanism which allows the upper back to articulate with pressure. The hinge is to be covered with high-strength plastic bellows. Four molded-in sills on underside of seat attach to spider with hi-lo screws. Upholstery available.
4) Dõni™
   The backrest and seat are injection-molded polypropylene. The seat and backrest are joined by a pair of hidden articulation mechanisms, each consisting of a 14-gauge steel housing, twin 7-gauge levers and steel coil springs. While maintaining a one-piece shell appearance, this mechanism allows the backrest to recline up to 17 degrees of motion.
   Optional upholstered seat and back are available. Urethane foam is attached to an injection-molded polypropylene liner board, then upholstered using a draw-string process. Seat foam is molded nominal 1"

thickness, and back foam is nominal 1/2" thickness. The flush-head fasteners that attach the back pad are color-matched to the polypropylene.
Optional armrests are available. When equipped with armrests, the armrests are installed on a steel tube support structure. The structure is part of the fixed base weldment attached underneath the seat base plate. The color of the structure matches the frame finish. The armrests are injection-molded glass-reinforced polypropylene. There are molded sockets in the armrests allowing them to be inserted onto the support structure and secured with screws.

5) Engage®
Seat is constructed of a molded polypropylene seat board with foam molded directly onto it. The foam-covered board is upholstered with fabric. An integral "seat slide button" is attached to the underside of the board, which allows the seat depth to be adjusted from 16" to 19". A textured polypropylene seat shroud attaches to the bottom of the seat and permits access to the seat slide button. The entire assembly is mounted through slots in the mechanism that allow the seat to slide in and out. The backrest has the same basic construction as the seat except the textured polypropylene back shroud is also available in an upholstered version. A stamped and welded steel housing contains a set of torsion bars that supply the force to the synchronized knee tilt mechanism. Controls include a forward tilt lockout, back angle lock, tilt tension control and pneumatic seat height lever. The chair seat is normally in a 2 degree reclined position. When the forward tilt lock is disengaged, the seat tilts to a 2 degree forward position. The back angle can be locked at three positions. The back tension can be increased or decreased by turning the tension dial to change the desired amount of preset on the torsion springs. The plastic mechanism shroud and control handles match the color of the chair.

6) Grazie®
Seat and backrest shall be injection-molded polypropylene. The seat support structure is a die-drawn 12-gauge steel plate. Fixed backrest mechanism structures are made from 1/2" diameter steel wire and attached by welding. Structure is finished with baked-on electrostatically-applied 30-degree gloss epoxy powder coating. Two outer backrest supports formed from 1" diameter tubular steel are inserted into sockets molded into the backrest and secured with screws. The backrest assembly moves over molded thermoplastic slide bushings and is supported by steel coil springs. This mechanism allows the backrest to move through 15 degrees of movement about an axis of rotation that is through the hips of the occupant.
Optional upholstered seat and back pads consist of urethane foam attached to an injection-molded polypropylene liner board, then upholstered using a draw-string process. Seat foam is molded nominal 1" thickness, and back foam is nominal 1/2" thickness. The flush-head fasteners that attach the back pad are color matched to the polypropylene.

7) Impress®
Seat is constructed of 1/2" thick, saddle-shaped plywood with 2-1/2" thick molded, high-resilient foam and upholstered. The entire seat assembly is mounted to the mechanism by four screws. Stamped steel dual housing forms a sturdy cradle for the seat. The seat slider is double spring-loaded with a side-mounted easy-to-use control. The backrest is injection molded plastic board with embedded inserts for mounting. The board is covered with contoured molded foam and upholstered. A textured black shroud covers the rear side.

8) Impress® Ultra
Seat is constructed of 1/2" thick, saddle-shaped plywood with 2-1/2" thick molded, high-resilient foam and upholstered. The entire seat assembly is mounted to the mechanism by four screws. Stamped steel dual housing forms a sturdy cradle for the seat. The seat slider is double spring-loaded with a side-mounted easy-to-use control. The backrest is nylon with fiberglass-reinforced frame. Back mesh material is polyethylene elastomeric with polyester.

9) Intellect Wave®
One-piece contoured shell is constructed of high-impact polypropylene. Colorfastness is ensured through complete color impregnation throughout the molded part. Strength and durability are ensured through an engineered internal structural cavity which eliminates the need for unsightly ribs on the back of the shell. Rolled edges provide comfort and strength. Front and back are textured. Wide, ergonomic handle is molded into the chair back for ease of mobility. The shell fastens to the 12-gauge steel seat spider with six 1/4-20 x 5/8" screws. Intellect Wave is available with an upholstered seat or an upholstered seat and back. Upholstered chairs have partially exposed polypropylene surfaces. Fabric is upholstered over 9/16" foam on the back and seat and fasted to an inner shell with screws. Back upholstery covers handle.

10) Strive®
Seat is constructed of injection-molded polypropylene. An optional upholstered seat is also available, for which molded urethane foam is attached to an injection-molded polypropylene seat board then upholstered using a drawstring process. The assembled seat pad is attached to the seat by means of hidden fasteners. The backrest is injection-molded polypropylene with integral steel cantilever springs. The combination of the slotted polypropylene back and spring steel provides a supportive flexing back. Springs are nominal 4-1/2mm diameter chrome silicon valve spring wire. An optional upholstered back is available, constructed of 1/2" thick urethane foam attached to an injection-molded polypropylene back board, then upholstered using a draw-string process. The assembled back pad is attached to the back by means of fasteners which are exposed and color matched to the polypropylene.

11) Torsion®
Seats and backrests shall be molded compound curved polypropylene with a textured finish. Seat is two-piece construction. Upholstered chairs have partially exposed polypropylene surfaces. Fabric is upholstered over 9/16" foam on the backrest and 15/16" foam on the seat. Vinyl is available on the seat only. Two die cast aluminum backrest supports attach the backrest to the Torsion mechanism. A steel tube is cast into each backrest support for added strength. The back flex is achieved by the Torsion mechanism. It consists of two flat torsion springs captured at both ends by brass bushings which in turn engage with the backrest supports. The Torsion mechanism creates gradually increasing resistance over the full 12 degrees of back flex.

12) Torsion Air®
Seat is a two-piece construction with a molded polypropylene liner with a molded compound curved polypropylene shroud with a textured finish. Seat is always upholstered. Foam (1-1/2") is applied to the molded polypropylene liner. Fabric is then upholstered over the foam. Backrest frame is molded glass-reinforced nylon. Mesh fabric is 100% polyester. Two welded steel backrest supports attach the backrest to the torsion mechanism. The back flex is achieved by the torsion mechanism. It consists of two flat torsion springs captured at both ends by steel bushings that are welded to the backrest supports. The torsion mechanism creates gradually increasing resistance over the full 12 degrees of back flex.

F. Power/Data Components (optional)

1) PowerUp Module
PowerUp module shall be 7" long x 3-1/2" wide x 2-1/2" high and fit securely into a 6-1/4" x 3" cutout. The module shall be constructed of polycarbonate with a textured finish, meeting UL-VO minimum requirements. The module shall have one duplex receptacle (rated at 15 amps/125 volts) and two locations for data connectors. Snap-in data plates hold data connectors and accommodate most manufacturers. The module shall have a dampened spring-loaded mechanism to allow the unit to open for use and shall be able to close when not in use. The power receptacles shall be located on a vertical plan when in use to avoid accidental spills into the receptacle. The data jacks shall remain stationary to avoid excess wear and tear on the data wire connections. A cord with a three-prong plug, 22" long, shall plug into the 8-wire harness. Data jacks and wires are not included. PowerUp is UL Listed as a relocatable power tap.

2) Under-Surface Power/Data
Optional under-surface power and data provides a duplex receptacle and two data ports concealed in a plastic protective shroud and mounted underneath the table top between seats, opposite the base location. The shroud cover shall be made of PVC meeting UL 94-HB, 14" wide x 16-1/8" deep x 2-1/4" high, vacuum-formed to house the connection of the 8-wire harnesses. It shall utilize the same 8-wire distribution system as PowerUp. Data jacks and wires are not included.

3) 8-Wire Harness
An 8-wire harness of flexible conduit shall distribute power between the power/data modules and the power infeed. The harness will be enclosed in a plastic trough with a divider to separate power and communication or data cables. The trough shall be constructed of rigid PVC approximately .06" thick. The trough shall be attached to the underside of the worksurface (by the installer) with wood screws provided. The trough shall measure 1.34" deep by 6.2" wide overall with an interior dimension of 5-1/2" cubic inches. The trough shall include an L-shaped divider measuring 1-1/4" x 1-1/4" and shall be attached to a groove in the trough.

4) Receptacle Shroud Cover
The receptacle shroud cover shall be made of PVC meeting UL 94-HB, 12" x 14" x 2" vacuum-formed to house the connection of the 8-wire harnesses and the cord from the PowerUp module. A 1-13/16" x 3"

opening in the shroud shall allow access to the duplex receptacle. A 1-1/4" radiused slot shall allow access for removal of the PowerUp module.

All electrical components shall be installed on site with hardware provided. All PowerUp and undersurface power components and University seating comprised of straight, truncated or radiused table tops, straight modesty panels, and fixed bases and swing arm components are UL Classified for electrical hazards only. A licensed electrician is required to connect the power infeed to the building power source.

2.4 FINISHES

Frame finishes - Powder-coated finish is standard on all frames. Standard KI fabrics available; C.O.M. (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

"University Seating" shall be designed and manufactured in compliance with the intent of ANSI/BIFMA X5.4-2012. Seating shall exceed all applicable BIFMA performance test criteria. Seating with Apply, Intellect Wave, Grazie, Torsion or Torsion Air shells are tested to 300-pound weight capacity. Electrical components of University seating (excluding curved modesty panels) shall be UL Classified for electrical hazards. University seating is SCS Indoor Air Quality 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"
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
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.
   - Four anchor assemblies required per base
2) Wood Floors
   - 3/8" x 2-1/2" Hex washer head tapping screw
   - Four screw assemblies required per base
3) Raised 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
   - Four bolt assemblies required per base