Planar Auditorium Seating

Contents

Part 5 - Execution............................................................................................................................................................. 20
  Examination
  General
  Adjusting

Installation Instructions .................................................................................................................................................. 21
  Figure 3 - Exploded Assembly
  Figure 4 - Floor Mounting Details

Maintenance Instructions .............................................................................................................................................. 24
About TSI

Theatre Solutions, Inc. (TSI) designs and produces distinctive and durable fixed seating. We are committed to providing the highest quality fixed seating and associated services in the world.

Quality, aesthetics, comfort and flexibility make TSI fixed seating the preferred choice for any building type. In addition to the advantages of our products, the attention TSI gives to every detail through each phase of the project makes us a valued ally to the architect, theater consultant, or building owner.

The Planar

The Planar offers a functional and subtle elegance with simple but pleasing lines. A thin common frame allows for greater seat size and increased comfort. A slim chair profile permits the architect to increase capacity without sacrificing comfort or proper egress space. The Planar is available with upholstered inner seats and backs with outer veneer, laminate, or powder coated panels. A wide variety of back shapes are available to complement any type of interior design. The following model is available:

**Planar A1** Equipped with inner upholstered seat and back cushions, as well as outer wood veneer panels (with finished plywood edges) for acoustical quality and refined appearance. Customized detailing on the backrest upholstery of the outer wood panels is optional.

Planar Features

- Gravity seat mechanism insures that the seat will always quietly return to a consistent vertical position.
- Hardwood armrests are available in a variety of species and finishes.
- Durable powder-coat finish is standard on all steel components.
- Flush mounted floor attachment hardware is standard.
- A variety of back shapes make this a uniquely versatile chair.
- Veneer, laminate and powder coated finishes are available on the outer seat and back panels.
- Standard spacing is 19", 20", 21" and 22" c.c. of frames (19" not available with tablet arm).
- Lifetime Warranty is standard on the Planar.

Planar Back Shapes

(Dotted lines represent inset upholstery)

Taper  Arch  Square  Crown  R2  Traditional
Planar Options

The Planar chair is available with many options. Choose the options that are appropriate for the project.

**End Panels** Stained to match the armrests, veneer end panels can enhance the visual appeal of the room. Due to the simplicity of the Planar leg design, customized end panel profiles and options are easily accommodated.

**Aisle Lights** Low-voltage (24v) aisle lights discreetly illuminate dark aisles and steps, enhancing safety and visual appeal. Aisle lights can be concealed in the underside of the arm cap, or installed in the end panel. Wiring is routed through the frame to provide a clean installation.

**Seat & Row Identification and Donor Tags** Seat & row identification plates and donor tags are available in a variety of shapes and finishes. Identification plates are recessed into the wood seat and armrest to achieve a flush, clean appearance, and in order to resist tampering.

**Tablet Arms** The tablet arm folds between the seat and armrest and provides a work area for the occupant. Tablet arms are available as either left or right-handed.

**California Technical Bulletin 133 Fire Code Compliance** (when required by local codes)

**Removable Chairs** Available as one, two, or three chairs, these units include a steel sled-base and can conform to the row radii so as to provide harmony with the design of the room, while maintaining the utmost in flexibility. Removable chairs are available with a standard base that allows them to be bolted to the floor quickly and easily, or an extended base that allows them to be completely freestanding without the need for physical attachment to the floor.

**Solid Wood Edges** Providing a higher level of warmth, solid wood edges hide the appearance of the plywood layers that can be seen on the edges of the outer wood seat and back panels. (Not available on Traditional, R2, and Taper shapes.)

**Transfer Arms** Designed to comply with the Americans with Disabilities Act, these unique frames allow easy and clear access to the seat. Installations without an end panel feature a hinged lift-up armrest while installations with end panels feature removable end panels.

**Riser Mount Frames** As an option to the traditional floor mounting of chair frames, riser mount frames are available. This gives architects and designers another mounting option, which allows for easier cleaning of the floors.

**Oversize Chair Widths** Chair widths of 23” and 24” c.c. are available to provide occupants with a higher level of comfort and to satisfy layout requirements.

**Bookracks** Available to meet the specific requirements for book storage, TSI provides project specific solutions.
Planar Product Advantages

**Gravity Tip-Up Seat** The Planar seat tip-up action is attained by the use of a gravity counterweight mechanism. The advantages of a gravity mechanism over a spring or cylinder mechanism are as follows:

- **Consistent and automatic return to the upright position.** Spring mechanisms can have inconsistent tip-up action due to the variation of the strength or fatigue of the steel springs. This affects the aesthetics of the room and may affect compliance with egress codes since the seats may not return to a consistent upright position.

- **Silent action.** Spring mechanisms are likely to develop squeaks and normally produce several loud hits before coming to a stop.

- **Seat tip-up will never fail.** Because the Planar mechanism relies on gravity, it will never fail to return the seat to its upright position. In contrast, as a spring mechanism fatigues, the seat tip-up action will get slower. Eventually, the spring mechanism may fail to return the seat to the upright position, producing a possible violation of egress codes.

**Seat Construction** The Planar seat construction is patterned after office chairs for long-term comfort and durability. Flexible polyurethane foam is glued directly to the structure of the seat. The advantages of this type of construction are as follows:

- **Silence, durability, comfort.** Seats constructed with serpentine springs often fatigue, sag and fail. This creates an uncomfortable and noisy seat, which may require replacement. TSI's flexible polyurethane foam construction offers significant user comfort over long seating periods. Additionally, the absence of steel springs insures completely silent compression during use.

- **Upholstered options.** Unlike metal seat pans with serpentine springs, Planar's all-wood construction allows for custom upholstery detailing. The fully-upholstered seat has a zippered slip-on fabric cover for easier on-site replacement.

**TSI Chair Frames** The Planar frames are welded assemblies of heavy gauge and solid steel components. The advantages of this type of construction are listed below:

- **Flexibility.** The Planar's welded steel assembly allows for simple and cost efficient design modifications for conformance to unique building conditions. Unlike high volume castings, welded construction facilitates small production run modifications.

**Cost of Ownership** Due to the obvious product advantages of Planar seating as mentioned above, and the superior service and warranty levels offered by TSI, purchasing Planar seating is a better long-term value. The initial savings associated with the purchase of a less expensive chair is likely to be lost through ongoing maintenance and replacement during the lifetime of the product.
**Warranty**  The Planar’s “Lifetime Warranty” speaks for itself in describing Theatre Solutions’ commitment to superior quality.

---

**Planar Lifetime Warranty**

Theatre Solutions, Inc. (TSI) warrants its’ products against failures and manufacturing defects for the life of the product. This warranty applies only to the original purchaser and is non-transferable. TSI will provide parts and labor to replace defective parts for the first two years after installation. Thereafter, TSI will provide replacement parts for the life of the product. This warranty does not cover damage from abuse, misuse, neglect or act of God. Damage caused by modifications to the product by anyone other than an authorized TSI technician will void this warranty. This warranty does not apply to fabrics or products not installed by authorized TSI technicians.
Market Focus
Theatre Solutions provides seating for a variety of building types. Our products and services are tailored to meet the specific requirements of each project type.

Performing Arts Centers

- Available outer wood veneer, high-pressure laminate, or powder-coated seat and back panels provide the reflective surfaces required to achieve enhanced acoustics and provide extra protection.

- The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet. This silent action is critical to the acoustic success of a performing arts center.

- All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.

- Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.

- Transfer arms of varying designs are available to comply with ADA requirements.

- Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19", 20", 21", and 22" with widths up to 24" available as an option.

- Removable chairs are available to enhance the flexibility of the seating layout as well as to provide for additional seating when required.

- Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty.

- The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any performance space. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any public space.
• Available outer wood veneer, high-pressure laminate, or powder coated seat and back panels provide the reflective surfaces required to achieve enhanced acoustics and provide extra protection.

• The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet. This silent action is critical to the acoustic success of the courtroom.

• All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.

• Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.

• Transfer arms of varying designs are available to comply with ADA requirements.

• Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19”, 20”, 21”, and 22” with widths up to 24” available as an option.

• Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty. These attributes are important in any public space, but become critical in a courtroom due to the quantity and variety of people using the facility.

• The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any public space. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any courtroom.
Corporate & Hospital Training Facilities

- Outer wood veneer, high-pressure laminate, or powder coated seat and back panels provide extra protection in high volume areas.

- Two-motion fold-away tablet arms provide a work area for the occupant.

- The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet.

- All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.

- Transfer arms of varying designs are available to comply with ADA requirements.

- Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.

- Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19", 20", 21", and 22" with widths up to 24" available as an option.

- Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty.

- The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any training room facility. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any meeting space.
Universities & Educational Facilities

- Outer wood veneer, high-pressure laminate, or powder coated seat and back panels provide extra protection in high volume areas.
- Two-motion fold-away tablet arms provide a work area for the occupant.
- Bookracks, designed to meet the requirements of each project, provide the occupant with extra storage space.
- The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet.
- All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.
- Transfer arms of varying designs are available to comply with ADA requirements.
- Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.
- Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19”, 20”, 21”, and 22” with widths up to 24” available as an option.
- Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty.
- The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any lecture hall. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any educational venue.
• Outer wood veneer, high-pressure laminate, or powder coated seat and back panels provide the reflective surfaces required to achieve enhanced acoustics and provide extra protection.

• The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet.

• All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.

• Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.

• Transfer arms of varying designs are available to comply with ADA requirements.

• Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19", 20", 21", and 22" with widths up to 24" available as an option.

• Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty.

• The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any museum auditorium. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any public space.
Religious Facilities

- Outer wood veneer, high-pressure laminate, or powder coated seat and back panels provide extra protection in high volume areas.
- The Planar chair is equipped with a gravity seat tip-up mechanism, which provides a soft and silent action. Regardless of how many times our seats are lowered and raised, the action is always consistent and quiet.
- All chairs are built with high-quality flame-retardant foam. In addition to reduced maintenance, solid foam seats provide significant user comfort over long seating periods.
- Transfer arms of varying designs are available to comply with ADA requirements.
- Chairs may be specified as individual units with two arms per chair. This allows for greater comfort than the standard common leg configuration in which two adjacent occupants share a center armrest.
- Bookracks, designed to meet the requirements of each project, provide the occupant with extra storage space.

- Flexibility in spacing allows the architect to achieve the best balance between comfort and room capacity. All Planar models have a standard spacing of 19”, 20”, 21”, and 22” with widths up to 24” available as an option.
- Removable chairs are available to enhance the flexibility of the seating layout as well as to provide for additional seating when required.
- Durability and reduced maintenance are the hallmarks of all TSI theater seating, confirmed by our Lifetime Warranty.
- The Planar is available in a wide variety of standard back shapes which allow the architect to customize the seating to fit any public space. The classic, subtle elegance, along with the durability of this chair, make the Planar ideal for any religious facility.
Planning Information

Theatre Solutions offers a variety of services designed to help in the planning and successful completion of any project requiring the use of fixed seating. Our services include analyzing proposed architectural plans and developing a seating layout that best meets the project criteria. We will assist in resolving issues related to code compliance and sight line development. All TSI preliminary services are free to architects and potential customers.

Further assistance is offered at those times when the architect has a need for custom components or a totally new product concept. The TSI team of experienced product designers welcomes the opportunity to assist designers in developing solutions to the most unique project requirements.

Program/Schematic Design Based on the estimated project requirements, we will assist architects in the development of a preliminary budget covering the fixed seating. This will ensure the establishment of a project budget that includes adequate funding for the product that meets the architect’s requirements.

Design Development During this critical phase of the project, we will assist the architect in the development of preliminary chair layout drawings, taking into consideration proper sightlines and code compliance. In many cases, the layout drawings must be perfected through several submissions. Special product requirements and possible solutions will be offered at this time. TSI will develop preliminary fixed seating specifications, which will be submitted to the architect for review and possible modifications. By solving design and specifications problems in greater detail during this phase of the work, the architect is able to simplify project documentation and avoid potentially costly oversights.

Custom Designs TSI’s staff includes experienced product designers who are capable of creating custom products and components which may be required to address unique project specifications. Additionally, TSI enjoys greater flexibility in production as a result of our diverse manufacturing and supply infrastructure.

When SOM (Chicago) Architects, Chang Jo Architects, and Artec Consultants determined the construction design for the LG Arts Center in Seoul, South Korea, they knew they wanted a finished wood surface on the face of all risers. With structural and acoustic considerations in mind, the final design included a build-out of more than 2” from the structural concrete. TSI developed a unique riser mount connection that provided excellent strength, ease of installation, and elegant design.

During the construction of the Kodak Theater, the home of the Academy Awards, architect David Rockwell and theater consultants, Theatre Projects Consultants, requested that TSI be responsible for developing cast glass sculptures for the end panels of the chairs and for the wall panels. In response, TSI identified and commissioned the services of a glass artist capable of producing the required complicated molds necessary to cast these beautiful sculptures. These unique glass sculptures, which are back lit, can be seen in the custom end panels of the chairs and in the panels located on the walls of the room.

Construction Documents As the architectural working drawings are finalized, TSI will update the chair layout and produce drawings to reflect all changes implemented since the preliminary documentation. TSI will also finalize the seating specifications in any format required by the architect to insure consistency with the rest of the contract documents. This will allow the architect to include the specifications and drawings in the construction documents without further work.

Project Management Every project awarded to TSI, regardless of size, will be assigned to a dedicated project manager who ensures that every detail of the contract receives full attention. The shop drawing submission will be completed in accordance to the project requirements and will take into consideration every detail unique to the project. It will include the exact location of every chair, installation details, the selected fabric and other appropriate details such as aisle lights, removable chairs, tablet arms, and any other options that are included in the contract. Once the shop drawing submittal is approved, TSI will schedule the production of the order in coordination with the project schedule.

If the installation is included in TSI’s contract, it will always be accomplished by a factory-trained installer and, in cases where necessary, under the supervision of TSI factory representatives.

Every portion of this work will be accomplished under the direct supervision of one or more of the TSI principals who, along with the project manager, will always be available to clarify any questions or discuss any aspect of the project with the project leaders.

The TSI design staff is anxious to work with you on your next theater chair project.
Figure 1 - Planar A1 Front, Side, and Plan Views
(This model has inner-upholstered seat and back cushions, both with outer wood veneer, high-pressure laminate, or powder coated panels.)

SIDE VIEW w/ SEAT DOWN

FRONT VIEW

SIDE VIEW w/ SEAT UP

PLAN VIEW

SIDE VIEW w/ SEAT UP
TABLET ARM

PLAN VIEW
TABLET ARM
Figure 2 - Planar Seating Layout Dimensions

CENTER-TO-CENTER DIMENSIONS FOR STANDARD CHAIRS WITHOUT TABLET ARMS ARE 19", 20", 21", OR 22".

CENTER-TO-CENTER DIMENSIONS FOR STANDARD CHAIRS WITH TABLET ARMS ARE 20", 21", OR 22".
Planar Specifications - Theatre Seating

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section

1.2 SUMMARY
A. This section includes the following:
   1. Common standard floor mounted chairs as detailed in Part 2 of these specifications.

1.3 SUBMITTALS
A. Product data for each type of product specified. Include installation methods.
B. Shop drawings, prepared for architectural drawings and from field dimensions, showing the seating layout, seat numbering sequence, chair sizes, and aisle widths. Also show a section view with profile dimensions of the seating and back-to-back dimensions.
C. Samples for initial selection purposes in the form of manufacturer's color charts or samples of materials showing the full range of standard colors, finishes, and patterns.
   1. Fabric
   2. Metal Finishes
   3. Wood Finishes
D. Statement signed by the theater seating manufacturer confirming that the products submitted comply with the specified requirements.

1.4 QUALITY ASSURANCE
A. Provide installer's qualifications confirming the installer is qualified to install the manufacturer's chairs
B. Provide seating that complies with California Technical Bulletin 117.
C. Obtain each type of seating, including accessories and mounting components, from a single manufacturer.
D. Design and install seating with end standards aligning from first to last row and with backs and seats varied in width to optimize sightlines. Comply with ADA rules and regulations.

1.5 PROJECT CONDITIONS
A. Environmental Conditions: Do not install seating until space is enclosed and weatherproof, wet work in space is complete and dry, installation of finishes including painting is complete, and ceilings are complete. Do not install seating until ambient temperature and humidity conditions are continuously maintained at final occupancy values.

1.6 DELIVERY, STORAGE, AND HANDLING
A. Deliver seating in manufacturer's unopened cartons clearly labeled with manufacturer's name and contents.
B. Handle seating in manner to prevent damage.

1.7 EXTRA MATERIALS
A. Furnish from the same production run as the materials installed. Package materials with protective covering and identify with labels describing contents.
   1. Seat and back covers to be furnished in a quantity equal to 5 percent of the amount of chairs installed.
Planar A1 Specifications – Theatre Seating

PART 2 - PRODUCTS

2.1 SEATING

A. Provide from Theatre Solutions, Inc., 121 Park Avenue, Quakertown, PA 18951, the Planar “A1” model as follows:

1. Basic floor mounted chair.
2. Inner upholstered seat and back.
3. Outer wood veneer seat and back with stained edges.
5. Aisle lights where indicated on the drawings.
6. Wood veneer end panels where indicated on the drawings.

B. Model noted is based on the Theatre Solutions, Inc. Planar “A1” model with the intent of establishing the high level of quality required for the project. Other brands submitted for approval will be given consideration provided that a full seating mock-up, along with a complete list of specification discrepancies between the proposed substitution and the product specified is received at least 10 working days prior to the bid date.

1. By offering a quote for this project, the bidder assumes full responsibility for complying with the specifications for this project and shall be totally responsible for any expenses incurred if the product quoted does not comply with the specifications.

C. Failure to comply with the warranty described in Part 4 of these specifications will be cause for disqualification.

2.2 MATERIALS

A. Padding material shall be flexible polyurethane foam which conforms to the standards of the California Bureau of Home Furnishings 117. The back shall be 2” thick. The seat shall be 3” thick.

B. Seating fabric shall be _______________ with the color to be selected from the standard choice of colors. The inner back and seat shall be upholstered by attaching the fabric to the inside wood back and seat panels. All upholstery shall be first quality without creases, stretch lines, or wrinkles.

C. Exposed wood on the outer back and seat panels shall be veneer. The panel edges shall be stained to match the veneer faces. The arms shall be solid wood. All wood shall be stained in any of the manufacturer’s standard finishes.

2.3 FABRICATION, GENERAL

A. Fabricate the theater seating in contoured form for maximum comfort using materials that are carefully selected to be free from defects, objectionable projections, or irregularities. Smooth round corners and edges to present the least possible snagging and pinching hazards.

2.4 MOUNTING

A. Fabricate seating units for floor attachment, using standards that have been manufactured to conform to the slope of the floor while maintaining seat and back in same angular relationship to standards throughout.

2.5 METAL STANDARDS

A. Frame shall be laser-profiled 5/16” hot-rolled steel plate and 11 gauge steel brackets welded into one integral freestanding structure upon which the seat, back, and arms are assembled. Pivot and stop pins shall be machined from cold finished steel to tolerances of ±0.000 -0.005. Floor mount plate shall be 5/16” thick hot-rolled pickled-in-oil steel plate with two countersunk holes for 1/4-20 mounting screws.

2.6 UPHOLSTERED CHAIRS

A. General: Fabricate theater seating with padding and fabric covering. Equip each seat with a gravity self-rising mechanism so that unoccupied seats return to an upright position perpendicular to the base line of floor of auditorium. Spring compensating mechanism will not be acceptable. Chair profile with the seat in the upright position and without a tablet arm, cannot exceed 17-1/2”. The chair profile with the seat in the upright position and with a tablet arm, cannot exceed 23-1/2”.

Planar Auditorium Seating Specifications 17
B. Seat Construction: Solid seat bottom construction comprised of a plywood veneer outer panel fastened solidly and without voids to an inner structural plywood panel. The outer panel shall be 3/4" thick, faced one side with Grade A veneer, and exposed plywood laminations along all edges. The inner panel shall be 3/4" thick. Both shall be electronically glued hardwood plywood and shall be fastened together with bayonet hanging brackets at the top and two steel angles at the bottom, resulting in a rigid connection with no visible fasteners. The veneer face and edges of the outer panel shall be stained to match the architect's sample. The padding shall be a fabricated assembly of urethane foam components, shall be glued to the inner panel, and shall conform to the California Bureau of Home Furnishings Technical Bulletin 117. The complete seat assembly shall be supported by two 7 gauge formed steel mounting brackets which will attach the seat assembly to the hinges on the standards. The seat shall have a built-in counterweight to insure automatic self-rising without the aid of springs. Arch-spring seat construction will not be acceptable.

C. Back Construction: Solid back construction comprised of a plywood veneer outer panel fastened solidly and without voids to an inner structural plywood panel. The outer panel shall be 3/4" thick, faced one side with Grade A veneer, and exposed plywood laminations along all edges. The inner panel shall be 1/2" thick. Both shall be electronically glued hardwood plywood and shall be fastened together with bayonet hanging brackets at the top and two 1/4-20 x 1-1/8" Allen-drive low-profile bolts at the bottom, resulting in a rigid connection with no visible fasteners on the outer wood panel. The veneer face and edges of the outer panel shall be stained to match the architect's sample. The padding shall be a fabricated assembly of urethane foam components, shall be glued to the inner panel, and shall conform to the California Bureau of Home Furnishings Technical Bulletin 117. The complete back assembly shall be supported by two 13 gauge formed steel brackets and two 3/8-16 hex head bolts which will attach the back assembly to the standards.

D. Armrests: Shall be kiln-dried solid hardwood, nominally 13/16" thick x 2-1/4" wide x 11-3/4" long, stained to match the outer seat and back panels. The armrest will be fastened to the steel frame with four #8 x 5/8" pan head sheet metal screws. Chairs equipped with tablet arms shall have armrests nominally 13/16" thick x 2-1/4" wide x 17-5/8" long and shall be attached to the steel frame arm support with four #8 x 5/8" pan head sheet metal screws.

E. Hinge: The seat hinge shall be a weldment consisting of a 7 gauge hot-rolled pickled-in-oil steel component and shall be formed and punched to receive a 0.56” id x 0.75” od x 0.5” long steel bushing. A self-lubricating nylon sleeve shall be fitted between the seat hinge and the standard seat hinge pin. The hinge shall be machined to provide a positive stop location for the seat in both occupied and unoccupied positions. The hinge shall be fitted with a plastic cover to eliminate all pinch points and shall include a 3/16” thick urethane rubber pad to dampen noise upon the seat return to the vertical position.
Planar Specifications - Theatre Seating

PART 3 - OPTIONS

3.1 END PANEL
   A. Provide manufacturer's standard end panel at the end of the row. The configuration of the panel shall follow the angle of the frame and back at the rear, and shall be vertical at the front end. The panel shall be constructed of 3/4" thick plywood with veneer on both sides and 1/8" thick solid wood on the vertical edges. The end panel shall be stained to match the outer wood seat, back, and armrests.

3.2 AISLE LIGHT
   A. Aisle lights shall be provided in accordance to the locations shown on the architectural drawings. The units shall be of low voltage (24v) type and the light tube shall fit into a routed area on the underside of the armrest. The chair frame shall be prepared to accept the power wire. The necessary access holes and blank cover plates shall be provided. The chair manufacturer shall also provide the necessary transformers. All wiring and electrical connections shall be conducted at the job site and shall be the responsibility of others.

3.3 HARDWOOD EDGES, OUTER SEAT AND BACK
   A. Outer plywood panels shall be trimmed in 1/8" thick hardwood on the top and vertical edges. The hardwood shall match the face veneer species and be stained to match.

3.4 INSET UPHOLSTERY, BACK
   A. Back upholstery shall be inset to expose the veneer face on the inside of the outer back panel. The veneer on the inside face on the back panel shall match the veneer species on the outside face and be stained to match.

3.5 SEAT AND ROW IDENTIFICATION TAGS
   A. Provide manufacturer's standard shape brass number and letter plates. Font shall be Times Roman. The size of the font on the seat number plates shall be 27pt; the size of the font on the row letter plates shall be 42pt. The number plates shall fit into a recessed area at the top edge of the seat. The row letter plates shall fit into a recessed area at the back of the armrest.

3.6 REMOVABLE CHAIR
   A. Provide the manufacturer's standard one, two or three chair removable units which shall include an integrated steel sled-base that is engineered to conform to the row radii and includes two through holes per chair for floor mounting.

3.7 FREESTANDING REMOVABLE CHAIR
   A. Provide manufacturer's standard freestanding removable chair which shall include an integrated steel sled-base that is engineered to conform to the row radii and includes extended length floor plates to allow the chairs to remain stable with no physical attachment to the floor.

3.8 TABLET ARMS
   A. Tablet arm shall be two-motion fold-away style, constructed of 1/2" medium density fiberboard, faced two sides with matte black high-pressure laminate. The edges shall be finished with a vinyl T-molding trimmed flush with both top and bottom surfaces.

3.9 BOOKRACK
   A. The bookrack shall be constructed of hardwoods and hardwood plywood. Bookrack shall be assembled with tongue and groove construction and finished with a catalyzed lacquer. The bookrack shall be attached to the outer surface of the chair back. An optional attachment configuration shall consist of a steel weldment attached to the chair leg. This configuration allows the bookrack to be located between chair backs.

3.10 COMPLIANCE WITH CALIFORNIA TECHNICAL BULLETIN 133
Planar Specifications - Theatre Seating

PART 4 - WARRANTY

4.1 The theater seating manufacturer must provide a Lifetime Warranty to the original purchaser of the seating as follows:

A. The seating manufacturer shall warrant its products against failures and manufacturing defects for the life of the product. This warranty applies to the original purchaser and is non-transferable. The seating manufacturer will provide parts and labor to replace defective parts for the first two years after the installation. Thereafter, the manufacturer will provide replacement parts for the life of the product.

B. This warranty shall not cover damage from abuse, misuse, neglect, or act of God. Damage caused by modifications to the product by anyone other than a TSI authorized seating installation technician will void this warranty. This warranty does not apply to fabrics or products not installed by authorized TSI seating installation technicians.

PART 5 - EXECUTION

5.1 EXAMINATION

A. Examine site conditions, with installer present, for compliance with requirements for construction tolerances as they affect anchors and fasteners, and location of junction boxes.

B. Do not proceed until unsatisfactory conditions have been corrected.

5.2 GENERAL

A. Comply with seating manufacturer’s printed installation instructions applicable to products.

B. Locate seating in locations indicated on approved shop drawings, with required clearances.

C. Install standards in locations conforming to seating layout, with each standard attached to substrate by no less than two anchoring devices of size and type required to insure that chairs are stable under conditions of actual use.

D. Install chairs using manufacturer’s recommended hardware and fasteners. Insure that chairs in curved rows are installed on proper radius and are oriented toward the center point of the radius. Verify that moving components operate smoothly and quietly.

5.3 ADJUSTING

A. Adjust as required to assure that the seats in each row are aligned when in the upright position.

B. Touch-up minor abrasions and imperfections in painted finishes with coating that matches factory-applied finish.

C. Replace any upholstery that has been damaged during installation.

END OF SPECIFICATION
Planar Installation Instructions
(Note: See Exploded Assembly [Figure 3] and Floor Mounting Details [Figure 4] on following pages.)

1. Use approved floor plan to establish hole locations for the foot plates. Note that the chair radius line coincides with the front hole of the foot plate. Accurate center-to-center width spacing is critical to a proper installation. Tolerance on the chair width dimension is plus or minus 1/8". It is critical not to exceed this tolerance on width spacing.

2. When mounting chairs over carpet, punch two 5/8" diameter holes in carpet to match holes in the chair base plate. Bolt leg frames to floor as per the appropriate anchoring method. (See figure 4.) Use 1/4" flat head machine bolt or wood screws and countersink lock washers. Hand-tighten bolts to allow for some slight movement in the leg frame.

3. Attach the back as follows (see figure 3):
   a. Place inner upholstered back in front of the back attachment wing brackets, aligning threaded inserts in the back with slots in the wing brackets. Insert (4) 1/4-20 x 5/8" Allen-drive low-profile machine screws through the slots in the wing brackets and tighten while insuring that the back is centered between the leg frames.
   b. Place the outer back panel behind and slightly above the inner panel and slide downwards to engage the flush-mount brackets. Use pinch clamps to draw the bottom of the panels together. Secure the panels by installing (2) 1/4-20 x 1-1/8" Allen-drive low-profile machine screws through the predrilled holes in the bottom of the inner panel and into threaded inserts in the outer back panel.

4. Orient the seat to the approximate occupied position and lower onto seat hinges (C). Install (4) 1/4-20 x 5/8 SEMS machine screws through slots in seat brackets and fasten to hinges. Insure seat is centered between legs prior to final tightening.

5. Flip seat up and down several times to insure that it pivots and returns to upright position freely. Adjustments can be made to the attachment bolts in either the seats or the backs.

6. Attach armrest by placing the routed area on the underside of the armrest over the mounting plate at the top of the leg frame. Secure using (4) #8 x 5/8" pan head sheet metal screws (see figure 3).

7. Tighten all floor attachments securely.
Figure 3 - Planar - Exploded Assembly

1/4-20 x 5/8" PH PN HD SEMS MS

#8 x 5/8" PH PN HD SMS

FLOOR ATTACHMENT SCREW (TYPE & LENGTH DEPENDENT UPON FLOOR TYPE & COVERING)

C/SINK EXT TOOTH LOCK WASHER

1/4-20 x 1-1/8" ALLEN-DRIVE LOW-PROFILE BOLT

FRONT VIEW

1/4-20 x 5/8" ALLEN-DRIVE LOW-PROFILE BOLT

BACK VIEW
Figure 4 - Planar - Floor Mounting Details
Maintenance Instructions

The Planar chairs are designed and built for years of reliable service. The durability and beauty of the chair will however, be greatly enhanced with proper care and inspection, as described below. Each project will be provided with an Operations and Maintenance (O&M) Manual which will describe in detail the maintenance measures to be taken by onsite personnel. For more information on the care of the veneer and fabric components of your product, please refer to the Finishes section of the Theatre Solutions binder.

Preventative Maintenance

**Inspection and Cleaning**
In the first year after the original installation, it is recommended that the chairs be inspected quarterly to insure that all chairs remain secure to the floor, and that the seats and backs remain tight to the leg frames. After the first year, this inspection interval can become longer, but should never exceed 6 months.

**Lubrication**
There are no components in the Planar chair which require lubrication. Seat pivot hinges include a nylon bushing to insure silent and consistent performance.

**Periodic Readjustment**
Besides inspecting for loose screw attachments, there should not be any routine need for readjustment. If, however, a loose connection is discovered, please refer to the appropriate drawing and instructions for installing the subject component. These drawings and instructions can be found in the O&M Manual.

Corrective Maintenance

The Planar chair has been designed and tested to achieve optimum performance and durability. In general, onsite maintenance personnel can provide the appropriate service to correct problems if they have the necessary spare parts and installation instructions.

**Troubleshooting**
In the event that a problem with the performance or finish of the chair occurs, it is often possible for immediate on-site remedies. TSI recommends that any loose component should be inspected for any visible evidence of breakage. If evidence is found, the part should be immediately replaced. If there is no evidence of breakage, the attachment hardware should be checked to insure tightness.

**Obtaining Replacement Parts**
A complete list of spare parts provided with the original installation is included in the O&M Manual. If any additional parts are required, simply contact Theatre Solutions and refer to the appropriate part number or the description listed in a drawing depicting the component.

**Service Calls**
For service work which cannot be executed by building user, contact Theatre Solutions and we will assist in arranging for a visit by qualified technicians.

**Shipping Back to Theatre Solutions**
Prior to returning any component part(s) to Theatre Solutions, please contact us by phone or fax for instructions on packaging and shipment method.