



07

Addendum

7.1 Final Drawings

7.1.1 Section

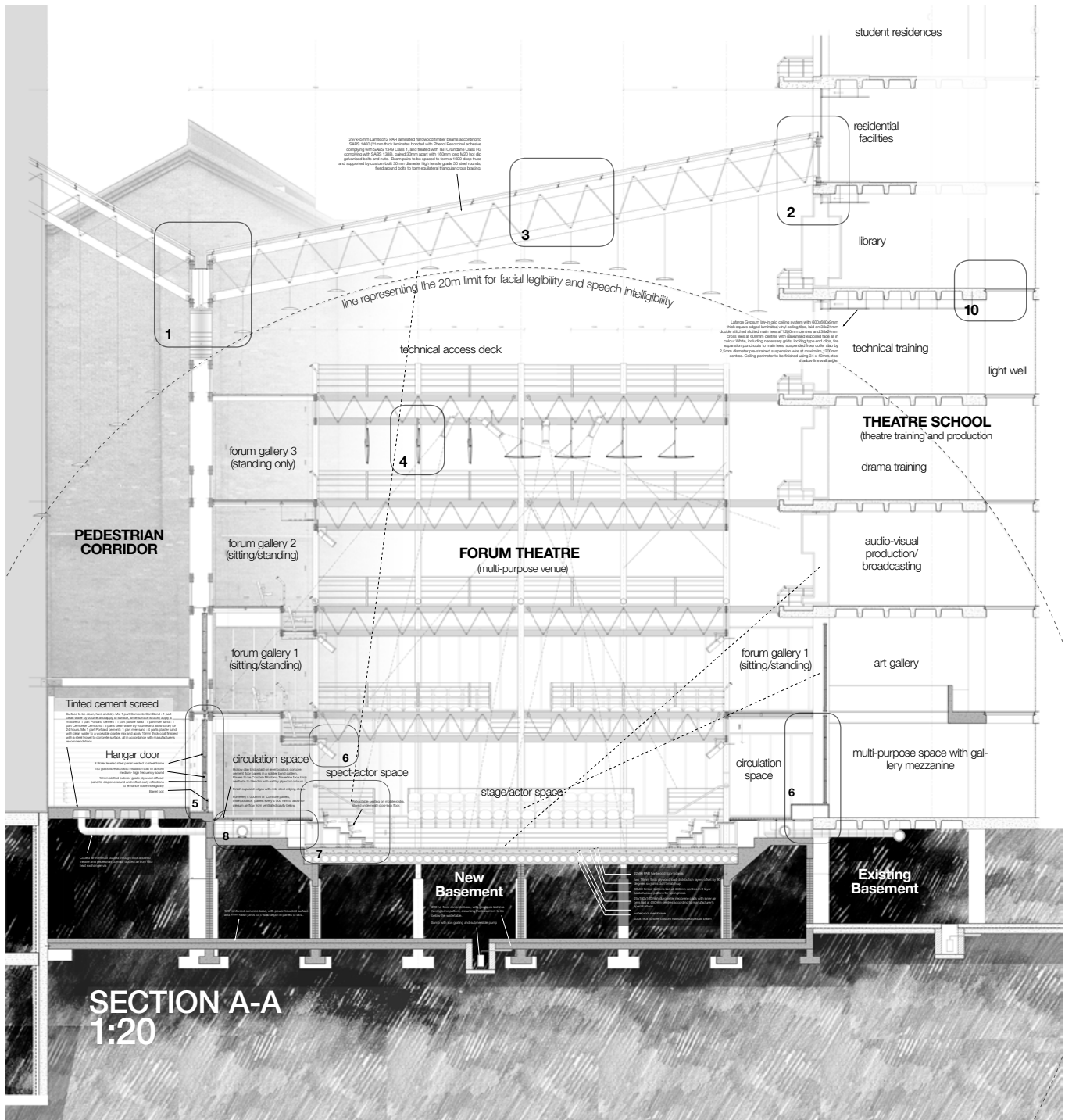


Fig. 7-208 SECTION A-A
SCALE 1:200

7.1.2 Box gutter detail

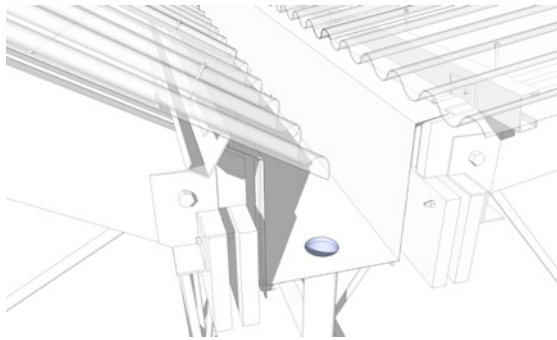


Fig. 7-209 Custom-made steel gutter and uPVC downpipe

Hough Group big six profile 1.25mm thick clear polycarbonate translucent roof sheeting, fixed at a pitch of 10° and fastened to purlins according to SANS 10237 through crowns of the profile with 6mm diameter galvanized steel hook bolts, nuts and washers at 500 centres, and side stitched to adjacent sheet with minimum 250mm sealed end laps in continuous run pattern to steel purlins.

425x400x4mm purpose-made continuous hot-dip zinc-coated carbon steel gutter with 175mm edge folded over top of roof truss to form flashing, complying with SANS 3575/4998 class Z275.

Gutter to be fixed to 670x50x5mm purpose-formed flat bar brackets welded to 70x70x6mm mild steel equal angle across roof trusses at max 1000mm centres with M8 steel bolts and nuts.

Gutter to be laid on a 16mm supawood sub-base to a fall of 1:500 towards 110mm diameter downpipes, and secured with 30x30x3mm hot-rolled steel equal angles, bolted into pre-drilled holes in the flat bar brackets to correct depth with M8 steel bolts and nuts.

110mm diameter u-PVC downpipe fixed to bottom of gutter according to manufacturer's specifications and according to SANS11, and fitted with 40mm diameter u-PVC feeder pipes to connect with 40mm diameter inlet of Jojo tank

Custom welded 360mm long z-profile and gusset plate (composed of two 100x75x6 hot-rolled steel angles welded to custom-cut 5mm steel plate gusset) to be fixed to horizontal truss laminated beam with 180mm long M10 hot dip galvanised bolts and nuts on either side of the roof truss position, and through gusset plate through roof truss with 180mm long M20 hot dip galvanised bolts and nuts.

297x45mm Lamtico12 PAR laminated hardwood timber beams according to SABS 1460 (21mm thick laminates bonded with Phenol Resorcinol adhesive complying with SABS 1349 Class 1, and treated with TBTO/Lindane Class H3 complying with SABS 1388), paired 30mm apart with 160mm long M20 hot dip galvanised bolts and nuts. Beam pairs to be spaced to form a 1600 deep truss and supported by custom-built 30mm diameter high tensile grade 50 steel rounds, fixed around bolts to form equilateral triangular cross bracing.

1800mm high 750mm diameter Jojo Slimline 750 litre rainwater collection tank. Tank pre-fitted with 40mm diameter outlet for flow to lower tanks, as per supplier's recommendations.

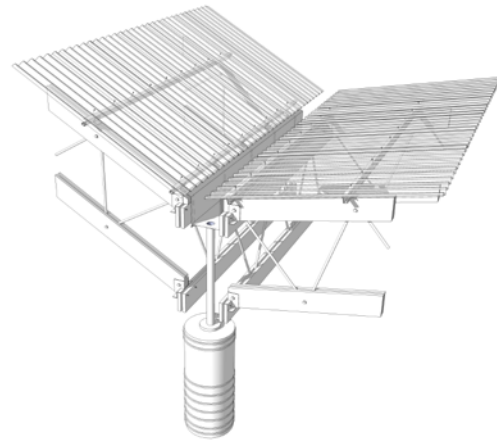


Fig. 7-210 View of Jojo slimline water tank

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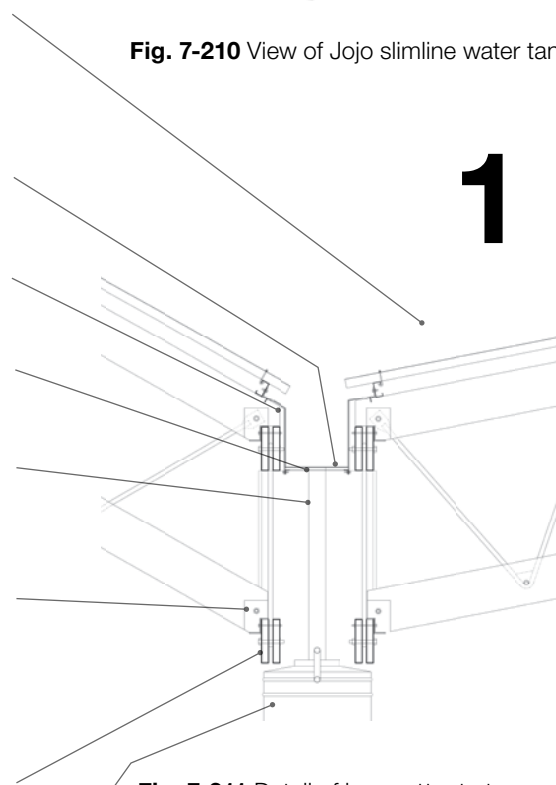


Fig. 7-211 Detail of box gutter to truss connection

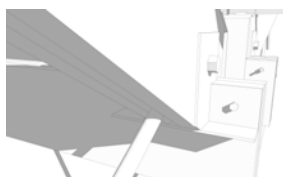


Fig. 7-212 Steel angle truss connection

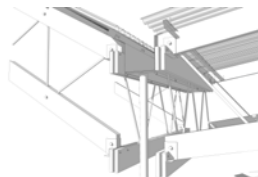


Fig. 7-213 View showing uPVC downpipe

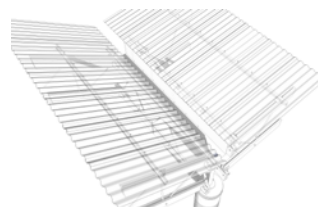


Fig. 7-214 View of transparent sheeting

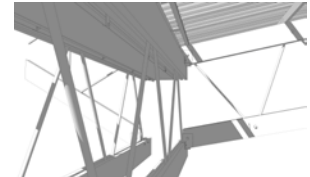


Fig. 7-215 View of laminated and steel round truss from below

7.1.3 Roof-to-existing column connection detail

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Existing concrete columns to be protected during all construction work and any damage made good.

Existing standard steel floor to ceiling window and door frame.
Existing 310mm high steel frame fanlight adapted for new suspended ceiling ventilation system outlet. Existing steel door removed.

Lafarge Gypsum lay-in grid ceiling system with 600x600x9mm thick square edged laminated vinyl ceiling tiles, laid on 38x24mm double stitched slotted main tees at 1200mm centres and 38x24mm cross tees at 600mm centres with galvanised exposed face all in colour White, including necessary grids, locking type end clips, fire expansion punchouts to main tees, suspended from coffer slab by 2,5mm diameter pre-stressed suspension wire at maximum 1200mm centres. Ceiling perimeter to be finished using 34 x 40mm steel shadow line wall angle.

New standard steel frame top hung window fixed to standard steel mullion profile below fanlight.

1.25mm thick clear polycarbonate flashing fixed min 175mm over edge of roof sheeting and taken to inside leaf of new standard steel window frame. Custom-built PAR timber sill to finish off flashing connection

297x45mm Lamtico12 PAR laminated hardwood timber beams according to SABS 1460 (21mm thick laminates bonded with Phenol Resorcinol adhesive complying with SABS 1349 Class 1, and treated with TBTO/Lindane Class H3 complying with SABS 1388), paired 30mm apart with 160mm long M20 hot dip galvanised bolts and nuts. Beam pairs to be spaced to form a 1600 deep truss and supported by custom-built 30mm diameter high tensile grade 50 steel rounds, fixed around bolts to form equilateral triangular cross bracing.

Roof truss fixed to 6mm thick custom-cut steel plate and angle, bolted into horizontal truss on either side of the roof truss connection with 150mm long M10 hot-dip galvanised bolts and nuts.

Horizontal truss lower laminated beam fixed to 200x200x16mm hot-rolled steel equal angles at either end of roof truss connections with 175mm long M20 hot dip galvanised bolts and nuts. Steel angle to be fixed to existing concrete slab with 345mm long 20mm diameter chemical anchor. Space between top and bottom beams of horizontal truss to be fitted with two 16mm thick exterior grade meranti faced plywood layers with cavity batts in between.

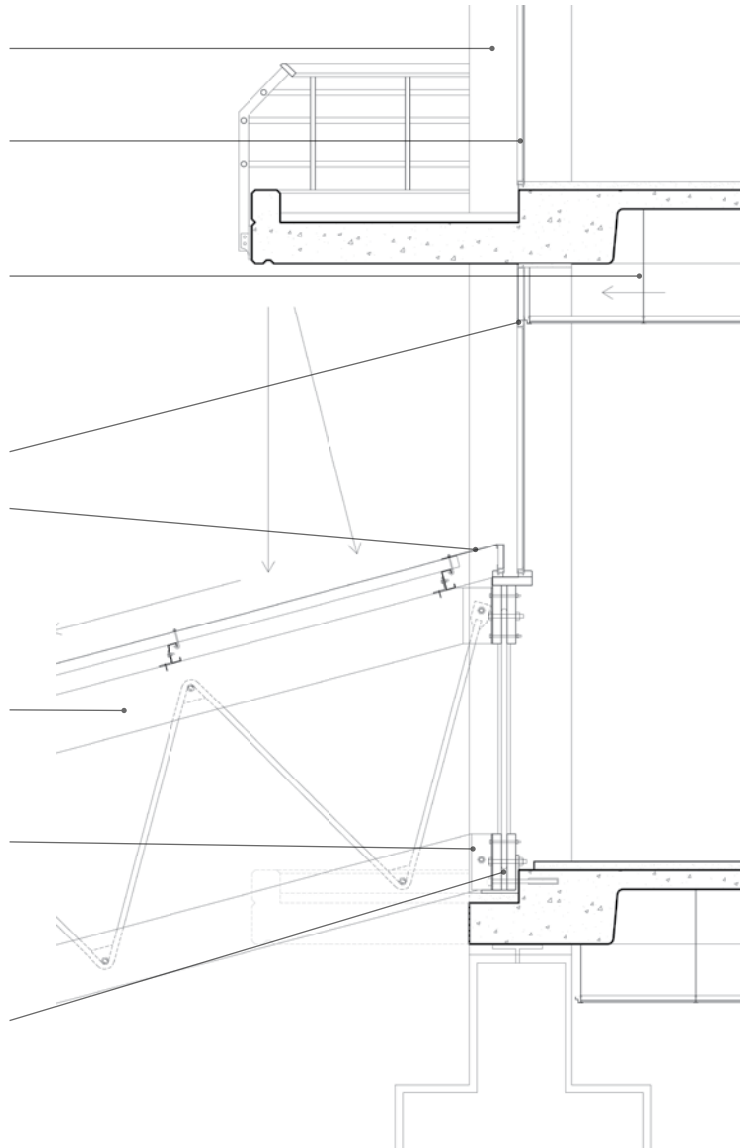


Fig. 7-216 Detail of truss connection to existing concrete column

7.1.4 Reflective plywood roof panels

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Hough Group big six profile 1.25mm thick clear polycarbonate translucent roof sheeting, fixed at a pitch of 10° and fastened to purlins according to SANS 10237 through crowns of the profile with 6mm diameter galvanized steel hook bolts, nuts and washers at 500 centres, and side stitched to adjacent sheet with minimum 250mm sealed end laps in continuous run pattern to steel purlins.

70x70x6mm mild steel equal angle fixed to top of truss with 38mm long 3.5 diameter steel self-tapping screws to support 100x50x20x3mm cold-formed lipped channel purlins at 1500mm centres, fixed to equal angle with M8 steel bolts.

297x45mm Lamtico12 PAR laminated hardwood timber beams according to SABS 1460 (21mm thick laminates bonded with Phenol Resorcinol adhesive complying with SABS 1349 Class 1, and treated with TBTO/Lindane Class H3 complying with SABS 1388), paired 30mm apart with 160mm long M20 hot dip galvanised bolts and nuts. Beam pairs to be spaced to form a 1600 deep truss and supported by custom-built 30mm diameter high tensile grade 50 steel rounds, fixed around bolts to form equilateral triangular cross bracing.

2440x1220x12mm thick exterior grade meranti faced plywood (to comply with SANS 929) panel, pre-shaped to custom s-profile curve lower surface of plywood finished with 3 coats polyurethane varnish (complying with SANS 887 part 2) upper surface of plywood covered with Isover Factorylite 50mm thick non-combustible flexible lightweight industrial fibreglass roof insulation with white metalized foil facing up to reflect direct light and heat out of the building.

Plywood and insulation fixed into custom-bent Lafarge 38x24mm galvanised steel main tee profile frame with steel Wafer Tek screws according to steel system supplier

Straight ends of panels finished off with Lafarge lightweight steel 75x50x2.5mm angles fixed to main tee profile with steel Wafer Tek screws

panel frames suspended by 2.5mm diameter pre-strained galvanised steel suspension wires at 300mm centres (to fit into Lafarge pre-cut slots) and twisted around themselves min 3 times before trimming acc. to manufacturer's specifications.

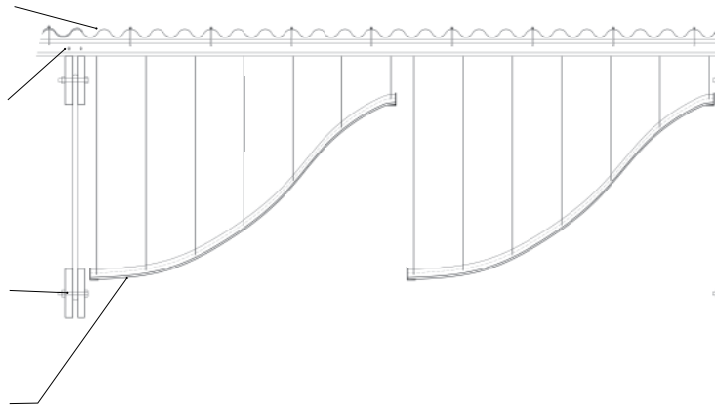
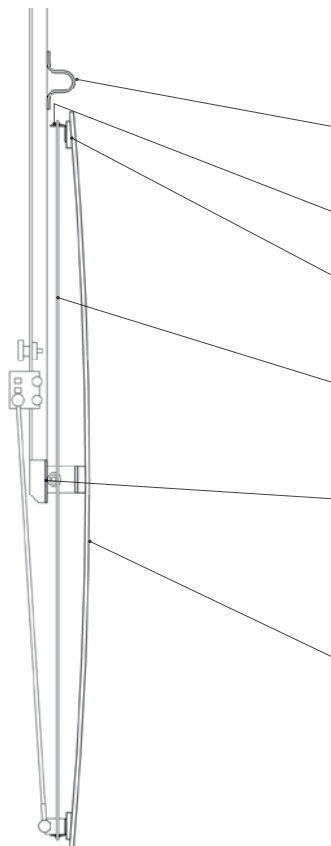


Fig. 7-217 Detail of light panels through roof perpendicular to slope

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7.1.5 Roof-to-existing column connection detail

Each panel unit to be suspended by fixing to 50x50x3mm hot-rolled steel hollow section booms extended from the structural truss.

50x50x2mm lightweight steel angles screwed to timber blocks with 16mm long 3.2mm diameter steel roundhead woodscrews at 400mm centres.

Panel to be fixed with 25mm long steel drywall screws at 250mm centres to 2440x75x25mm pine timber strips custom-planed to fit curve.

10mm diameter high tensile steel threaded rods at 600mm centres fitted through opposite equal angles with 10mm diameter friction grip nuts according to SABS 1282 to provide stabilized tension to the curved panels.

Custom-made 50x50x2mm lightweight steel angle hinged framework constructed according to acoustic manufacturer's specifications, to be fixed to 600x75x25mm timber block (as per panel-steel angle joint), to allow the panel to swivel to correct acoustic angles for a wide variety of performances and their unique acoustic requirements.

2440x1220x12mm exterior grade meranti faced plywood complying with SANS 929 bowed along shorter direction to optimal acoustic reflection shape off-site according to acoustic manufacturer's specifications.

Fig. 7-218 Rotating acoustic panel in vertical orientation

7.1.6 Detail of adapted hangar door

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Hot-rolled steel ball race wheel & 3mm thick cold-formed galvanized steel top track fixed to custom-made 16mm thick hot-rolled steel channel to be bolted to centre of trusses on either side with M20 hot dip galvanized steel bolts and nuts.

180x70x7mm hot-rolled steel channel top cap

125x50x20x3mm cold-formed steel lipped channel fixed between steel channel caps at max 670mm centres

102 thick Isover CavityBatt self-supporting glasswool insulation sheets fitted between channels

12.7 thick gypsum board fixed to channels with drywall screws at 200mm centres to provide insulation around hangar door structure

6 thick exterior grade slotted plywood fixed to gypsum board with drywall screws at 400 centres to contribute to sound absorption between theatre space and circulation space

WINDOW CONSTRUCTION

75x40x3mm cold-formed steel channel screwed to lipped channel

two 6mm thick sheets of laminated safety glass fixed into channel with 6mm double-sided adhesive tape at the side and 6x200 long pvc setting blocks along the bottom according to glass supplier.

Glass to be separated at either end with a dessicant-filled spacer according to manufacturer and finished at the ends with a silicone secondary seal.

Outer edges of glass-channel connection to be finished with a min 8mm thick silicon sealang

Pre-manufactured steel bottom rollers fixed to steel channel bottom cap to fit into 50x10mm custom-cut hot-rolled steel flat bar track cast into concrete floor slab

Upper hangar door track cast into concrete set in custom-made 7mm thick hot-rolled steel channel fixed to top of channel.

Barrel bolt

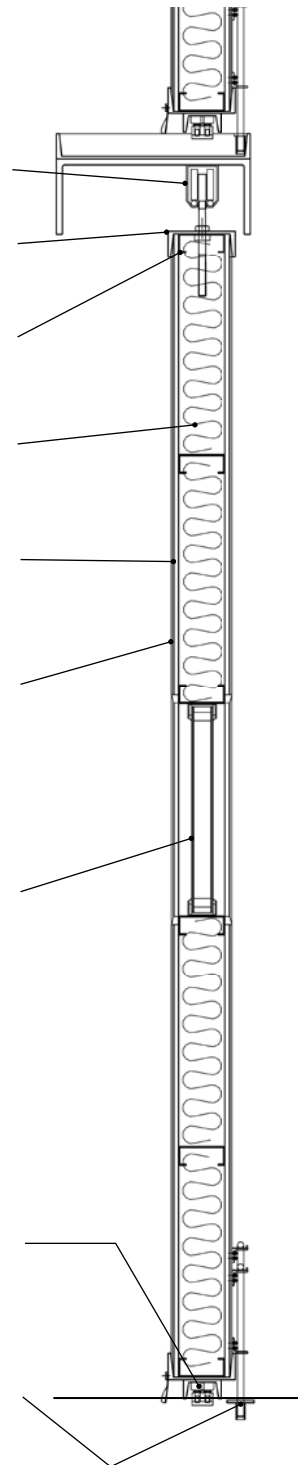


Fig. 7-219 Detail of adapted hangar door

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7.1.7 Detail of mobile retractable seating

Khanda custom-made retractable rollback seating system with automatic locking levels and patented Irwin Seating Company 120V Integral Drive System in 75x50x3 steel channel casing fixed to underside of lowest level frame.

Walkable deck formed by 16mm exterior grade meranti-faced plywood screwed to top of steel frames

Level-supporting frames built of 50x50x3mm hot-rolled steel square hollow sections welded as per seating manufacturer's specifications and offset from one another to roll side by side when stored. Top and bottom rolling connections consist of steel cable guides fitted through drilled 50x50x3mm steel equal angles welded to the frame and bottom wheel channels, and nylon rollers that prevent metal-to-metal contact, as per seating manufacturer's specifications.

50x50x3mm steel equal angles are bolted diagonally across the longer span of the frames to provide cross-bracing as per manufacturer.

75x50x3mm steel wheel channels containing lockable wheel system, welded to bottom of supporting frames.

Custom-made folding seats are fixed above walkable deck with hinged connections according to manufacturer, to 120x60x3mm steel rectangular hollow sections forming the rear riser beams.

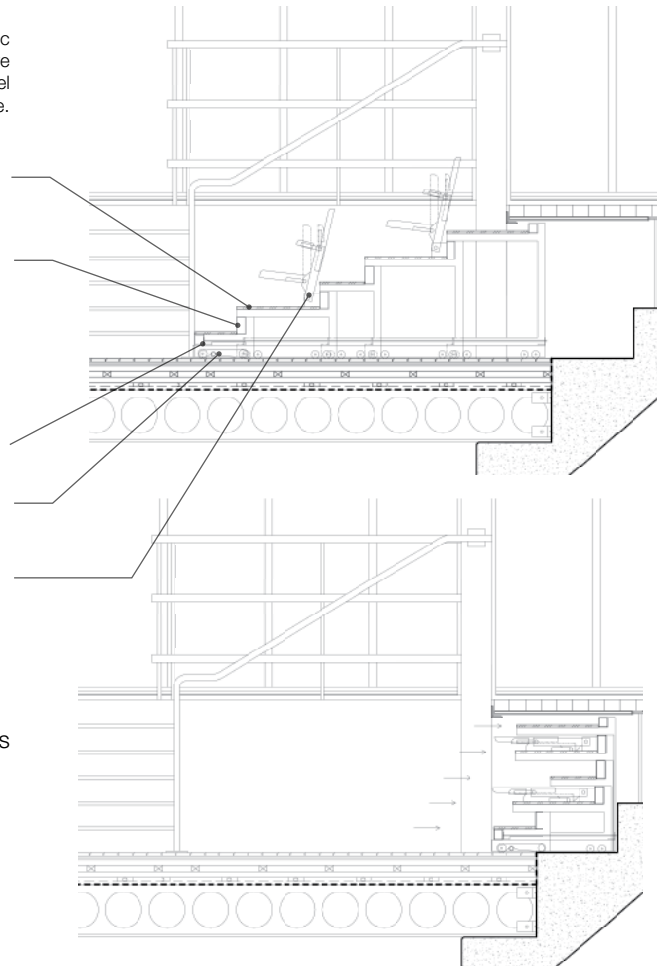


Fig. 7-220 Detail of retractable seating in two positions

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7.1.8 Detail of mobile retractable seating

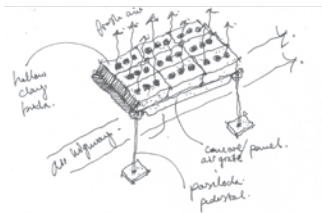


Fig. 7-222 Ventilation concept sketch: movement of fresh air through floors surrounding theatre

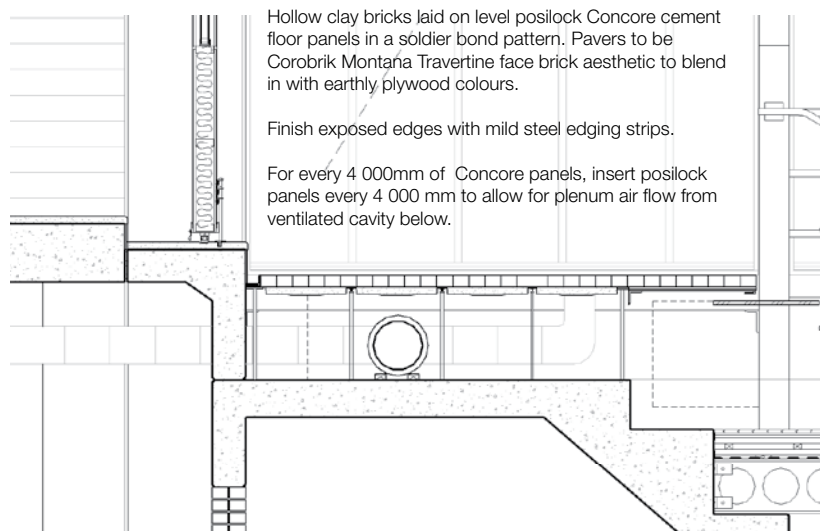


Fig. 7-221 Detail through ventilated floor system

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7.1.9 Detail plan of rotating acoustic side panels

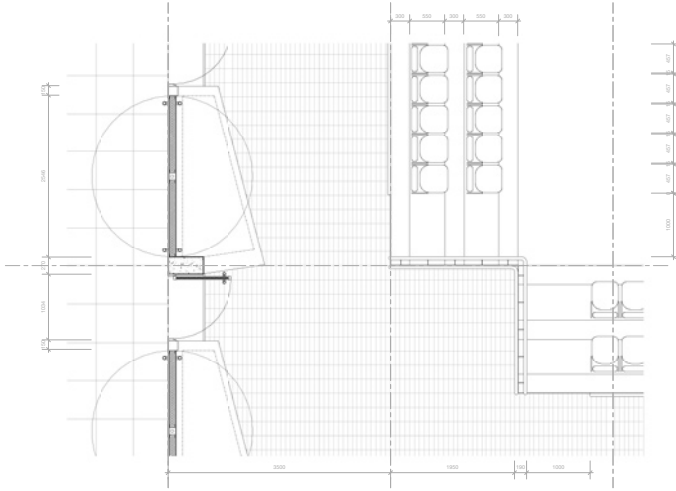


Fig. 7-223 Detail floor plan of rotating acoustic facade panels

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7.1.10 Detail of new glass flooring

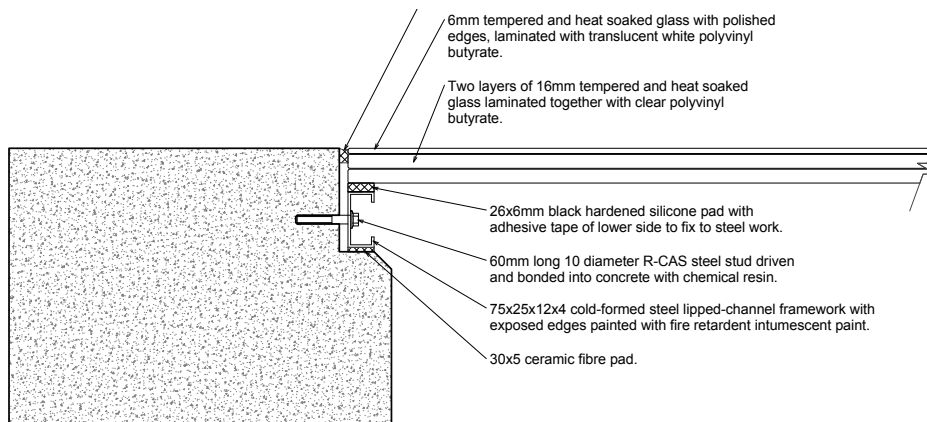


Fig. 7-224 Detail of glass floor installation

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7.1.11 Ground Floor Plan

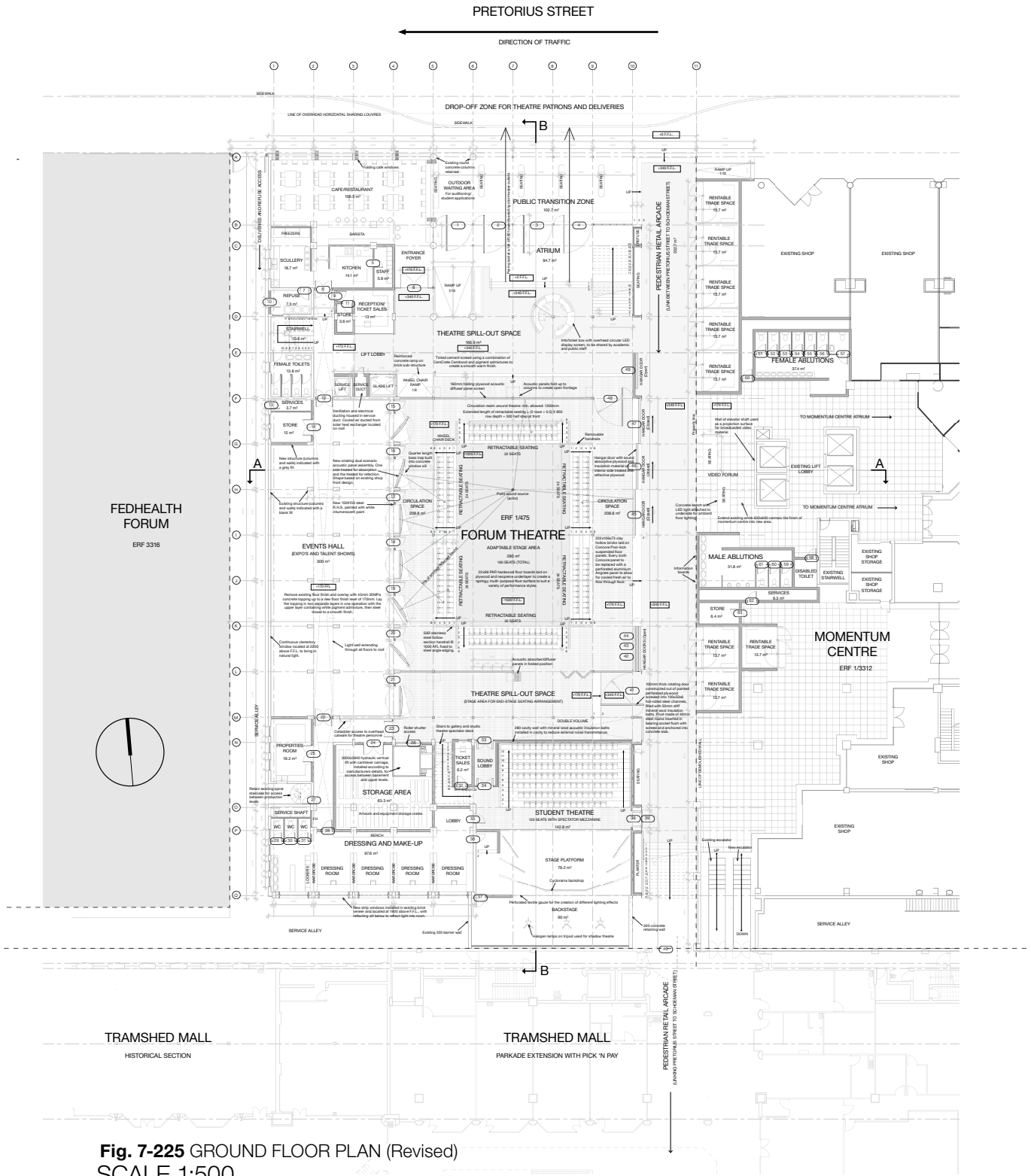


Fig. 7-225 GROUND FLOOR PLAN (Revised)
SCALE 1:500