

Tate Asia-Pacific Pty Ltd
ConCore® ICSF800/60cm Access Floor Panel
Corner Lock Understructure System

SECTION 0541
ACCESS FLOORING

PART 1 - GENERAL

1.1 Section Includes

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Work of this section includes, but is not limited to access floor panels, understructure, and accessories.

1.2A Related Sections

- A. Concrete sealer shall be compatible with pedestal adhesive, see Division 3.
- B. See Division 26 Section “Grounding and Bonding for Electrical Systems” for connection to ground of access flooring understructure. Note: The electrical engineer or contractor shall determine requirements for grounding and the electrical contractor shall provide the necessary labour and materials to electrically connect the access flooring to the building ground if it is required.

1.2B Access Floor Air Plenum Requirements

(Retain paragraphs below if access flooring will be used to form an underfloor air delivery plenum.)

- A. The access floor contractor is aware that the space beneath the access floor will be used as an air delivery plenum and as such will take the necessary precautions when installing their work so as not to impact the integrity of the plenum space specific to air leakage and cleanliness. Any penetrations or holes in the under floor plenum created for or resulting from the work performed by the Division 9 access flooring contractor are required to be properly sealed to prevent air leakage.
- B. Panel construction shall be die-cut welded steel type which creates a consistent panel-to-panel seam width along the entire edge of the panel when installed in accordance with normal installation procedures.

1.3 Environmental Conditions for Storage and Installation

- A. Area to receive and store access floor materials shall be enclosed and maintained at ambient temperatures between 1.7° to 35°C, and relative humidity levels between 20% and 80%. All floor panels shall be stored at ambient temperatures between 10° and 32°C for at least 24 hours before installation begins. All areas of installation shall be enclosed and maintained at ambient temperatures between 10° and 32°C and at relative humidity levels between 20% and 80% and shall remain within these environmental limits throughout occupancy.

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1.4 References

- A. CISCA (Ceilings & Interior Systems Construction Association) “Recommended Test Procedures for Access Floors” shall be used as a guideline when presenting load performance product information.
- B. Note: As of October 2016, the previous standard AS 4154-1993 General Access Floors has been withdrawn by Standards Australia. As defined by Standards Australia, ‘Withdrawn’ indicates the document is no longer relevant, or its designation has changed. Standards Australia has not listed an alternative standard. Therefore, Tate has adopted CISCA (Ceilings & Interior Systems Construction Association) - “Recommended Test Procedures for Access Floors” shall be used as a guideline when presenting load performance product information. The CISCA test method is used globally and is widely respected as the most common test procedure for Access Floors.

1.5 Performance Certification

- A. Product tests shall be witnessed and certified by an independent engineering and testing laboratory with a minimum of five years’ experience testing access floor components in accordance CISCA “Recommended Test Procedures for Access Floors.”

1.6 Product Marking

- A. Floor panels shall be permanently marked on panel sidewall with vendor’s name, product identification, and manufacturing date.

1.7 Performance Requirements

- A. **Design Load (Allowable Load):** Panel *when supported by actual understructure* shall withstand a point load of 3.5kN concentrated on a 645mm² 25mm square area at any location without exceeding 0.254mm permanent set. The method of load application in the tests shall conform to CISCA A/F, Section 1 “Concentrated Loads”, however the panel shall be supported by understructure used in installed systems rather than by steel support blocks.
- B. **Ultimate Load:** Panel *when supported by actual understructure* shall withstand a point load of no less than 7.0 kN concentrated on a 645mm² 25mm square area at any location without failure when tested in accordance with CISCA A/F, Section 2 “Ultimate Loading”. Failure is defined as the point at which the system will no longer accept the load.
- C. **Safety Factor:** Panel supported by actual understructure shall maintain an overload safety factor of no less than two times its design load anywhere on the panel when tested in accordance with CISCA A/F, Section 2 “Ultimate Loading”. The safety factor is calculated by dividing the ultimate load by the design load.
- D. **Rolling Load:** Panel supported on actual understructure system shall withstand the following rolling loads without developing a local and overall surface deformation greater than 1.0mm when tested in accordance with CISCA A/F, Section 3 “Rolling Loads”.

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Note: that Wheel 1 and Wheel 2 tests are performed on separate panels.

Wheel 1: Size: 76mm dia. x 46mm wide	Load: 2.7 kN	Passes: 10
Wheel 2: Size: 150mm dia. x 50mm wide	Load: 1.8 kN	Passes: 10,000

- E. **Impact Load:** Panel supported on actual understructure (the system) shall be capable of supporting an impact load of 68kg dropped from a height of 900mm onto a 645mm² 25mm square area (using a round or square indentor) at any location on the panel.
- F. **Panel Drop Test:** Panel shall be capable of being dropped face up onto to a concrete slab from a height of 900mm, after which it shall continue to meet all load performance requirements as previously defined.
- G. **Panel Cutout:** Panel with a 200mm diameter interior cutout supported on actual understructure shall be capable of maintaining its design load strength anywhere on the panel without the use of additional supports. The test method for verifying design load and safety factor shall conform to CISCA A/F, Section 1 “Concentrated Loads” test method except the test panel shall be supported by actual understructure used in installed systems.
- H. **Flammability:** System shall meet *Class A* Flame spread requirements for flame spread and smoke development. Tests shall be performed in accordance with ASTM-E84-1998, Standard Test Method for Surface Burning Characteristics for Building Materials.
- I. **Combustibility:** All components of the access floor system shall qualify as non-combustible by demonstrating compliance with requirements of ASTM E 136, Standard Test Method for Behaviour of Materials in a Vertical Tube Furnace at 750°C.
- J. **Fire Hazard:** All components of the access floor system produce early fire hazard results as tested under ISO9239-1-2003, which include Ignitability 0, Spread of Flam 0, Heat evolved 0, and Smoke Developed. Manufacturer to product independent test reports to demonstrate compliance with this standard.

Understructure:

- A. **Pedestal Axial Load Test:** Pedestal assembly shall provide a minimum 26.7kN axial load without permanent deformation for floor heights up to 600mm when tested in accordance with CISCA A/F, Section 5 “Pedestal Axial Load Test”.
- B. **Pedestal Overturning Moment Test:** Pedestal assembly shall provide an average overturning moment of 113Nm when glued to a clean, sound, uncoated concrete surface when tested in accordance with CISCA A/F, Section 6 “Pedestal Overturning Moment Test”.

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1.8 Design Requirements:

- A. Access floor system, where indicated on the design documents, shall consist of modular and removable fully encased cementitious filled welded steel panels fastened onto and supported by adjustable height pedestal assemblies.
- B. System shall combine lockable panels within a stringerless, cornerlocked understructure. The finished access floor shall have a 'bare' panel surface finish ready to accept on-site floor covering supplied by others.
- C. Panel shall be easily removed by one person with a suction cup lifting device and shall be interchangeable except where cut for special conditions.
- D. Quantities, finished floor heights (FFH) and location of accessories shall be as specified on the contract drawings.

1.9A Submittals for Review

- A. Detail sheets, for each proposed product type, which provide the necessary information to describe the product and its performance.
- B. Test reports, certified by an independent testing laboratory with a minimum of five years' experience testing access floor components in accordance CISCA Recommended Test Procedures, certifying that component parts perform as specified.

1.9B Submittals for Information

- A. Manufacturer's installation instructions and guidelines.
- B. Manufacturer's Owner Manual outlining recommended care and maintenance procedures.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Access floor system shall be by Tate Asia-Pacific Pty Ltd and shall consist of ConCore® ICSF 800 access floor panel supported by the corner lock understructure system.
- B. Alternative products shall meet or exceed all requirements as indicated herein and must receive prior written approval by the architect or designer.

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2.2 Support Components

Pedestals:

- A. Pedestal head and base assembly shall be of corrosive resistant all-steel welded construction with an adjustment range of +/- 25 mm for floor heights of 150mm or greater.
- B. Pedestal assembly shall provide a means of leveling and locking the assembly at a selected height, which requires deliberate action to change height setting and prevents vibration displacement.
- C. Corrosion Resistant steel head assembly shall consist of a 4mm thick die formed steel plate resistance welded to a 19mm diameter solid steel threaded rod which includes a specially designed adjusting nut with location lugs to engage the base, such that deliberate action is required to change the height setting.
- D. Pedestal head shall have four machined pins which self-engage into the corner lock holes at the panel underside and positively position the panel without screws. The pins shall be internally threaded to accept M6 x 1 cornerlock screws.
- E. Threaded rod shall be solid steel and shall include an anti-rotation device such that when the head assembly is engaged in the base the head cannot freely rotate (for FFH of 150mm or greater). This prevents the assembly from losing its leveling adjustment when panels are removed from the installation during use.
- F. Corrosion Resistant steel base assembly shall consist of a minimum 2mm thick die formed plate with 100 x 100mm square area of bearing area, resistance welded to a 22mm square tube with 16 ga. wall designed to engage the head assembly.

2.3 Panel Components

ConCore® ICSF Floor Panel:

- A. Panels shall consist of a top steel sheet welded to a formed steel bottom pan filled internally with a lightweight cementitious material. Mechanical or adhesive methods for attachment of the steel top and bottom sheets are unacceptable.
- B. Cementitious fill material shall be totally encased within the steel welded shell except where cut for special conditions.
- C. Panel shall have a total of 120 welds; comprising 64 internal and 56 perimeter welds to ensure structural integrity.
- D. Panel bottom shall have recess in each corner to firmly engage locating pins on pedestal heads for positioning and retention, to prevent head rotation, and to provide additional safety when corner lock screws are removed.
- E. Panel shall be protected from corrosion by a powder paint finish.

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- F. Fastening of panels to pedestal heads shall be accomplished by the use of M6 x 45mm white zinc machine screws with electrical serration.

2.4 Accessories

- A. Provide manufacturer's standard steps, ramps, fascia plate, perimeter support, and grommets where indicated on the contract drawings.
- B. Provide _____ spare floor panels and _____ square metres of understructure systems for each type used in the project for maintenance stock. Deliver to project in manufacturer's standard packaging clearly marked with the contents.
- C. Provide _____ panel lifting devices.
- D. When applicable provide manufacturer's standard underfloor air systems components (including grilles and diffusers) where indicated on the contract drawings.

2.5 Finishes

- A. Finish the surface of floor panels with floor covering material as indicated on the contract drawings. Where floor coverings are by the access floor manufacturer, the type, colour, and pattern shall be selected from manufacturer's standard.

2.6 Fabrication Tolerances

- A. Panel flatness measured on a diagonal: +/- .90mm
- B. Panel flatness measured along edges: +/- .635mm
- C. Panel width or length of required size: +/- .25mm
- D. Panel squareness tolerance: +/- within 0.76mm

PART 3 - EXECUTION

3.1 Preparation

- A. Examine structural subfloor for unevenness, irregularities, and dampness that would affect the quality and execution of the work. Do not proceed with installation until structural floor surfaces are level, clean, and dry as completed by others.
- B. Concrete sealers, if used, shall be identified and proven to be compatible with pedestal adhesive. Verify that adhesive achieves bond to slab before commencing work.
- C. Verify dimensions on contract drawings, including level of interfaces including abutting floor, ledges and doorsills.
- D. The General Contractor shall provide clear access, dry subfloor area free of construction debris and other trades throughout installation of access floor system.

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- E. Area to receive and store access floor materials shall be enclosed and maintained at ambient temperatures between 1.7° to 35°C and relative humidity levels between 20 to 80%. At least 24 hrs before installation begins; all floor panels shall be stored at ambient temperatures between 10° to 32°C and relative humidity levels between 20% to 80% and shall remain within these environmental limits throughout occupancy.

3.2 Installation

- A. Pedestal locations shall be established from approved shop drawings so that mechanical and electrical work can be installed without interfering with pedestal installation.
- B. Installation of access floor shall be coordinated with other trades to maintain the integrity of the installed system. All traffic on access floor shall be controlled by access floor installer. No traffic but that of access floor installers shall be permitted on any floor area for 24 hours to allow the pedestal adhesive to set. Access floor panels shall not be removed by other trades for 72 hours after their installation.
- C. Floor system and accessories shall be installed under the supervision of the manufacturer's authorised representative and according to manufacturer's recommendations.
- D. No dust or debris producing operations by other trades shall be allowed in areas where access floor is being installed to ensure proper bonding of pedestals to subfloor.
- E. Access floor installer shall keep the subfloor broom clean as installation progresses.
- F. Partially complete floors shall be braced against shifting to maintain the integrity of the installed system where required.
- G. Additional pedestals as needed shall support panels where floor is disrupted by columns, walls, and perimeter cutouts.
- H. Understructure shall be aligned such that all uncut panels are interchangeable and fit snugly but do not bind when placed in alternate positions.
- I. Finished floor shall be level, not varying more than 1.6mm in 3m or 3.2mm overall.
- J. Installed panels shall be straight and square and spaced so that the distance from one end to the other of any line of 12 panels is not less than 7.315m and does not exceed 7.205m.
- K. Acceptance: General contractor shall accept floor in whole or in part prior to allowing use by other trades.
- L. All cable and wire openings shall be sealed with manufacturer's removable cable cutout seal or grommets.

End