

CODE OF PRACTICE EXPLANATION

Version 3.1



IPCA Ltd.
Insulated Panel Council
Australasia Ltd

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CODE DISCLAIMER AND WARNING

It should be noted that the solutions in this voluntary Code of Practice (CODE) cannot guarantee safety or outcomes for occupants, fire fighters, or owners of buildings in the event of a fire due to the unpredictable nature and behaviour of fire, and the many variables that affect fire behaviour which are outside the control or influence of the recommendations of this CODE.

It is not the intention of *Insulated Panel Council Australasia Ltd (IPCA Ltd.)* that this voluntary CODE be used as a guarantee of the products produced or workmanship of the members and final jurisdiction and responsibility for fire performance rests with the relevant authorities and Code Compliant Companies' manufacturers and installers.

The accuracy and reliability of the content and recommendations should be independently confirmed by the reader.

Failure to implement proper risk management may result in loss, damage or injury and this voluntary CODE does not claim to cover every precaution that is required to prevent the risk of fire in Insulated Panel Structures built in accordance with the CODE.

Insulated Panel Council Australasia Ltd (IPCA Ltd.) will not accept liability as a result of acting on the content or recommendations of this publication or voluntary Industry Code System.

"Insulated Panel Council Australasia Ltd (IPCA Ltd.) has made every attempt to ensure the accuracy, completeness and suitability of the information presented in this CODE. Whilst every effort has been made to ensure accuracy, IPCC Ltd. does not guarantee that the information is complete or correct and no representation is made about the accuracy or completeness of the information and material and it should not be relied upon as a substitute for the exercise of independent judgment.

IPCA Ltd. will not be liable in any way whatsoever (including for negligence) for any loss, damage (including incidental, special or consequential damages), costs or expenses suffered, arising out of, or in any way connected with the CODE to the extent permitted by law".

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APPLICATION OF CODE

The Code of Practice (CODE) has been introduced by the Insulated Panel Council Australasia Ltd (“IPCA Ltd.”) and sets out the principles and standards for the design, manufacture, installation, maintenance and risk management of structure built with EPS Fire Retardant Panel (EPS-FR Panel and ISP). The intention of the CODE is to deliver a better performing Panel System in a fire.

The CODE has been developed through consultation with industry leaders, external fire experts and members from NSW Emergency Services and AFAC. The key objective of the CODE is twofold:

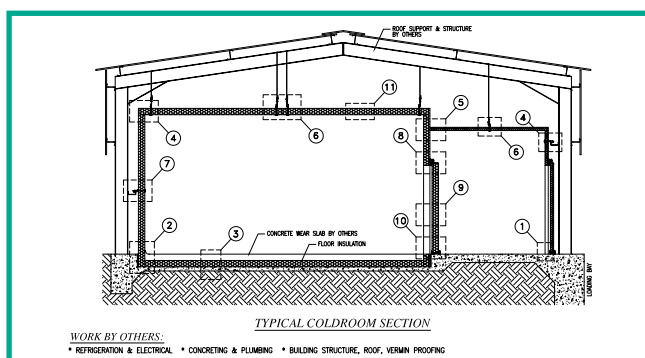
- 1: To increase fire fighters’ confidence when undertaking their operational roles in addressing a range of fire emergencies in buildings.
- 2: Improve overall standards of ISP and EPS-FR Panel System Application to improve long term value of investment.

The CODE will initially apply to buildings classified by *BCA Class 7 and 8*, with optional application to other Classes. Specific work covered by the CODE is:

- (a) Detailing and drawings;
- (b) Panel Manufacturing;
- (c) Panel Installation; and
- (d) Post Construction practices.

OBJECTIVES OF CODE

- (a) To promote best practice in the design specification and approval for facilities using ISP and EPS-FR Panel;
- (b) To establish minimum acceptable benchmarks for manufacturing and installation of ISP and EPS-FR Panel;
- (c) To promote strategies to address risks of fires;
- (d) To promote high levels of maintenance of facilities made of ISP and EPS-FR Panel;
- (e) To promote environmental and sustainable credentials for ISP and EPS-FR Panel; and
- (f) To provide recognisable “Code Branding Mark” to distinguish ISP and EPS-FR Panel facilities made of ISP and EPS-FR Panel which is compliant with the CODE.



APPLYING THE CODE

- (a) Manufacturers and installers must be paid up members of IPCA Ltd. to apply for Certification.
- (b) Members will ensure their teams are educated on CODE Application and Standards.
- (c) CODE Compliance fully supports other legislative requirements, at National, Territory, State and Local Government levels.
- (d) Parties to the CODE Certification commit to upholding the contractual obligation.
- (e) The CODE will endeavour to operate with best practice policies and procedures with regard to:
 - (i) Compliance with legislation;
 - (ii) Appropriately qualified and trained teams;
 - (iii) High level of quality work;
 - (iv) Occupational Health and Safety;
 - (v) Minimising environmental impacts; and
 - (vi) Customer Service and Project Management.
- (f) Tender or proposal letters must clearly state CODE Application.
- (g) Breaches of the CODE will be professionally addressed.
- (h) The CODE has mechanisms for appeal, for ongoing review and enhancements of processes and scope.
- (i) **The IPCA Ltd. has an established mechanism for CODE administration, registration, audits and publications.**

The CODE underpins the ethos “RIGHT PANEL, RIGHT APPLICATION, RIGHT PLACE”.

CODE STANDARDS

Design, Panel manufacture and construction methodology will be assessed to ensure these meet the CODE standards.

1.0 DESIGN DETAILING AND SPECIFICATION

The fundamental aim of the designer in preparing the design and specification of an ISP and EPS-FR Panel System Structure which meets the requirements of this Certification Scheme is to design a Panel System Structure with maximum structural integrity, thereby providing a more fire stable Panel System Structure in the event of a fire. A number of Systems are available to achieve this objective and Code Compliant Companies are encouraged to submit their proprietary solutions for approval.

To meet the requirements of this section of the CODE, Part B Code Specification, the applicant is required to provide, with their Part C Certification Scheme application, details to be incorporated in the ISP and EPS-FR Panel System design. This could include detailed drawings of the following:

- (a) Cross Sectional Drawing;

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- (b) Chiller External Wall Detail;
- (c) Wall to Insitu Floor;
- (d) Partition Wall External Wall Base Detail;
- (e) Wall to Wall Corner Details;
- (f) Ceiling Connection Chiller to Freezer;
- (g) Wall to Ceiling Joint Details;
- (h) Wall to Ceiling with Hanging Fastener Detail;
- (i) External Wall and Partition Detail;
- (j) External Wall and Low Ceiling Details;
- (k) Intermediate Ceiling Suspension Details;
- (l) Intermediate Ceiling Suspension;
- (m) Main Ceiling Suspension Detail;
- (n) Chiller Intermediate Wall Fixing; and
- (o) Chiller/Freezer Intermediate Wall Fixing Detail Freezer.

N.B. **Annex A** provides examples of Sectional Drawings of Jointing and Suspension Details required to comply with the CODE and meet the Certification requirements.

The applicant is also required to provide details of any other design specifications specific to the Insulated Sandwich Panel and Expanded Polystyrene Panel System for which the application for Certification for Code Compliance is being made.

Details are also required for provisions of the appropriate Panels in areas of food processing at elevated temperatures and cooking equipment or similar heat generating equipment/processes in as far as they are known and declared to the certified ISP and EPS-FR Panel Systems supplier and installer.

2.0 PANEL MANUFACTURING/TYPE

The following is the criteria for the ISP and EPS-FR Panel System to meet to achieve the performance requirements of this Certification Scheme:

(i) Polystyrene

All polystyrene for insulation Panels and floor insulation shall be self extinguishing (FR) Expanded Polystyrene (EPS) foam in accordance with Australian Standard AS1366.3 1992 which is equivalent to the British Standard 3837-1986.

EPS shall be manufactured from 100% FR bead and shall be oven or other approved curing system cured after manufacture to ensure the resulting blocks are dry and residual pentane or other blowing agents have been removed.

The EPS shall be minimum 'SL' Grade with performance complying with AS1366.3 1992.

(ii) Steel Skins

Insulated Panel to be manufactured from steel skins thickness 0.4mm to 0.7mm manufactured (normally) with a Microban® or equivalent anti-bacterial paint technology – proven to inhibit the growth of surface bacteria that causes odours, food poisoning, allergies and staining. This

product is HACCP endorsed. Typically Colorbond® Permagard™ white steel is used as supplied by BlueScope Steel or equivalent.

(iii) Insulated Panel

Insulated Panel to be manufactured in pre-painted galvanised steel skins bonded to both sides of a core of fire resistant (FR) polystyrene foam by a two part heat polymerising adhesive.

The skins are to be bonded to the polystyrene core with a two part heat polymerising adhesive by means of a continuous laminating and roll forming process providing an interlocking tongue and groove style joint.

The surface of the insulated panels can be either smooth or standard style profiles.

(iv) Other Panel Types

Insulated Sandwich Panel (ISP) or other types will be accepted as an alternative:

- (a) If they have Group 1 Certificate when tested to AS/ISO 9705; or
- (b) Materials that do not have an AS/ISO 9705 Group 1 Certification will be exempt if they have an FM Approval 4880 Class 1 Classification and are installed to the FM requirements as well as all the Code Group Plus measures applicable to EPS-FR Panels.

3.0 PANEL INSTALLATION

The “onsite” installer of ISP and EPS-FR Panel Systems plays a key role in achieving the requirements of the Certification Scheme and the overall IPCA Ltd. Code of Practice Compliance and therefore will need to be trained in the aspects of Panel construction and fixing.

ISP and EPS-FR Panel will be installed to Group 1 BCA AS/ISO 9705 C1.10 and require the following enhancements:

(a) Support

- (i) Perimeter suspension to all ceilings - ceilings not to be supported by Panel walls.
- (ii) No nylon fixings or suspensions to be used; minimum 10mm galvanised steel or stainless steel threaded steel rod with either wire and gripples, or certified chain.
- (iii) No aluminium rivets to be used, only steel or stainless steel fixings.
- (iv) No aluminium extrusions to Panel junctions; all junctions to be steel of the equivalent thickness of the Panel skins minimum.

(b) Floor Insulation

- (i) Floor insulation shall consist of a minimum of FR EPS.
- (ii) The floor vapour proof membrane shall consist of one layer 0.250um thick heavy duty grade polythene film.
- (iii) The polythene vapour proof membrane is to be sealed to the wall/floor; transitional vapour proof membrane sealed in a similar manner.
- (iv) The insulation normally laid in two layers with all joints staggered by half a block width and length as appropriate.

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- (v) All concrete slabs and under floor ventilation (for freezers) are excluded from this specification. All base slabs for Panel erection should be level to $\pm 3\text{mm}$ in 3000mm.

(c) Sealants

- (i) All Panel work shall be fully sealed to create and maintain a complete vapour seal.
- (ii) The vapour seal is to be applied on the warm side of the Panel work.
- (iii) Sealants for Panel joints, floor vapour seal joints, etc. shall be non-setting mastic suitable for use in temperatures ranging from -30°C to $+50^{\circ}\text{C}$. The mastic shall remain pliable and not crack, dry out or go brittle with age. The mastic shall be Selseys N Mastic non-drying sealant or approved equivalent.
- (iv) Wall Panel slip joints and other joints shall be sealed with mastic liberally applied so that excess mastic is clearly visible on the Panel surface joint. Mastic is to be applied to the joint components before erection or making joint fast. Excess mastic shall be removed from the Panel surface at the completion of the project.
- (v) Where specified for use, silicone sealant shall be neutral cure. Silicone sealant in food processing areas shall be mould resistant.
- (vi) For waterproofing, polyurethane sealant or equivalent shall be used.

(d) Fixings

- (i) All rivets used shall be blind, sealed steel encased rivets.
- (ii) All rivets shall be 4mm diameter and at 300mm centres which shall be regarded as the minimum requirement or Class 3 steel screws at 300mm centres as required for Group 1.
- (iii) Ceiling suspension and wall girt fixings to structural steelwork shall be by mushroom head bolt galvanised or stainless steel rod steel or stainless steel wire or certified chain fixings via a sleeved hole through the panel, sealed with non setting mastic. Suspensions must comply with BRANZ Report FCR 9.

(e) Joints

- (i) All joints will be designed and fabricated to ensure integrity of insulation and vapour seal. Joints will be capped and fixed with folded 0.4mm minimum thick steel flashings as necessary.
- (ii) Wall Panels shall be seated on an Angle Channel or F Mould. The angle shall be fixed to the concrete structural slab by metal Dyna Bolt anchors or approved equivalent. The angle shall be placed on a 300mm wide transitional polythene vapour barrier (refer floor insulation).
- (iii) A continuous bead of mastic shall be placed on the under-side of the angle prior to fixing to the concrete.
- (iv) Prior to placing insulation Panels, mastic shall be applied liberally to the angle.
- (v) The joint between vertical wall Panels shall be tongue and groove type joint. Mastic shall be applied liberally to the Panel joint when required prior to each Panel's erection.

(f) Thermal Cuts

- (i) Adequate provision shall be made for expansion and contraction on the insulation Panel skins by providing internal skin cuts in low temperature areas.
- (ii) Thermal cuts shall be provided at required heights up the wall and shall be nominally 3mm wide and over flashed with matching Colorbond® and fixed as per (d).

(g) Relief Ports

- (i) Adequate provision shall be made for pressure relief using double acting multi-valve pressure relief ports. All pressure relief ports will be fitted with heater cables.

(h) Heater cables

- (i) Heater cables shall be low voltage or voltage regulated with suitable circuit breakers.

(i) Doors

- (i) Insulated doors shall be manufactured with pre-fabricated Panel as for walls and ceiling, framed with heavy duty extruded aluminium extrusions, complete with labyrinth gasket, all necessary hardware and operating mechanisms. Door frames shall be fixed to walls without the use of additional steel framing. Door frames and architraves shall be aluminium and PVC extrusions with due consideration for thermal break across Panel thickness.
- (ii) All doors to be fitted with safety escape instructions and release mechanisms.

4.0 EMERGENCY AND SAFETY MEASURES FOR REFRIGERATED AND COOLING CHAMBERS

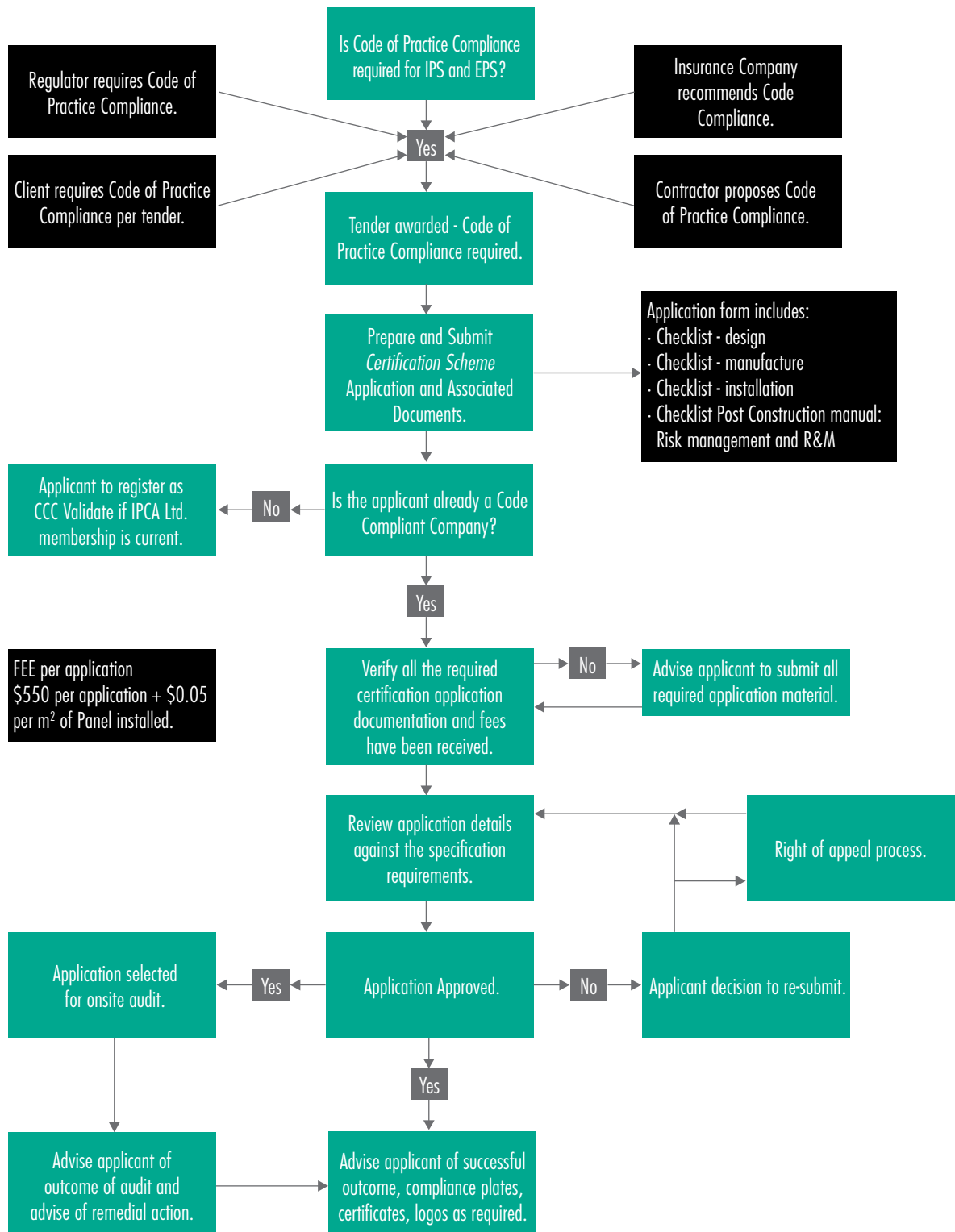
A refrigerated or cooling chamber or similar, that is capable of accommodating a person, is to have safety measures to facilitate escape and for alerting people outside of such a space in an emergency. These measures would include:

- (a) A door which is capable of being opened by hand from inside without a key;
- (b) Internal lighting controlled only by a switch which is located adjacent to the entry doorway inside the chamber;
- (c) An indicator lamp positioned outside the chamber, which is illuminated when the interior lighting required by (b) is switched on;
- (d) An alarm that is:
 - (i) Located outside but controllable only from within the chamber; or
 - (ii) Able to achieve a sound pressure level outside the chamber of 90dB when measured 3m from the sounding device; and
- (e) A door required by (a) in a refrigerated or cooling chamber must have a doorway with a clear width of not less than 600mm and clear height not less than 1.5m.

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APPLICATION FLOW CHART: ISP PANEL CERTIFICATION SCHEME



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POST CONSTRUCTION

Registration:

- (a) A register of Code Compliant Companies is maintained on the website.
- (b) Code Compliant Companies will be granted a licence to use specific IPCA Ltd. Code Brand Marking.
- (c) A register of Code Compliant Facilities is maintained on the website. The relevant Fire Brigades are advised of all facilities that are registered by provision of a certificate.

Post Construction Process:

On completion of a Code Compliant Facility, the client will receive the following:

- (a) Manual containing the Risk Management practices that should be practiced and validated on a regular basis;
- (b) Register of inspections and Risk Management assessments;
- (c) Emergency procedures planning;
- (d) Logo list of applied logos in facility and compliance plate; and
- (e) Code Compliant promotional material.

CODE SPONSORSHIP

All IPCA Ltd. members are sponsors of this CODE. The managers and executive team are committed to implementing the CODE and to its further development and improvement.

The Members of the IPCA Ltd. manufacture a complete range of products and the principles of this CODE apply equally to Insulated Panels of all types. Its application to other Panel types have now been implemented, its adoption to EPS-FR Panel has been deliberate in addressing prevalent incorrect perceptions about the comparative performance of ISP.



Foot Note: *

Class 1: one or more buildings which, in association, constitute a single dwelling, being a detached house, one or more attached dwellings, each being a building, a boarding house, guest house, hostel.

Class 2: a building containing 2 or more sole-occupancy units each being separate dwelling.

Class 3: a residential building, other than a building of Class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons.

Class 4: a dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building.

Class 5: an office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.

Class 6: a shop or any other building used for the sale of goods by retail or the supply of service direct to the public.

Class 7: a building which is a carpark or storage, or display of goods or produce for sale by wholesale.

Class 8: a laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale, or gain.

Class 9: a building of a public nature: a health-care building, an assembly building, an aged care building.

Multiple Classification

Each part of a building must be classified separately, and – where parts have different purposes – if not more than 10% of the floor area of a storey, being the minor use, is used for a purpose which is a different classification, the classification applying to the major use may apply to the whole storey; and the provisions above do not apply when the minor use is a laboratory or Class 2, 3 or 4 and Classes 1a, 1b, 7a, 7b, 9a, 9b, 9c, 10a and 10b are separate classifications.

*For detailed classifications refer BCA.



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IPCA Ltd. - PANEL
CERTIFICATION SCHEME