



Shield Formply Technical Document: 2019

Formwork & Formply Best Practices for Class 2 Finish Work Method Statement

“Formwork means the surface of the form and framing used to contain and shape wet concrete until it is self-supporting”. Formwork includes the forms on or within which the concrete is poured and the frames and bracing which provides stability. Although commonly referred to as part of the formwork assembly, the joists, bearers, bracing, foundations, and footings are technically referred as falsework.”

Reference Source: Safe Work Australia - PDF Document # 978 - 1 - 74361 - 783 - 0

SHIELD supports the promotion of best work practises within the Australian Formwork industry necessary to produce consistent Class 2 finishes of its premium grade F17 Class 2 Formply.

When used under best practices, Shield F17 Class 2 formply manufactured to AS 6669: 2007 - 2016 will provide a Class 2 finish.

SHIELD FORMPLY - Just one part of the BIGGER Picture

Construction of Class 2 finish concrete structures is a symphony of many elements within the construction industry before a completed building is handed over to its owners.

This symphony of sorts includes but is not limited to: engineering designs, architectural designs, builder project management, formwork PCBU's, concreting PCBU's, worksite personnel, construction practices, formwork framing, scaffolding, concrete supply, concrete pouring, concrete work, manufacture and supply of formply, manufacture and supply of framework structures and overall trade suppliers and contractors.

Shield Formply is just one element of an important part of the total construction equation that translates into a total formwork solution required to result in a Class 2 finish on concrete structures.



Australian Standard



AS 6669 – 2007 to 2016



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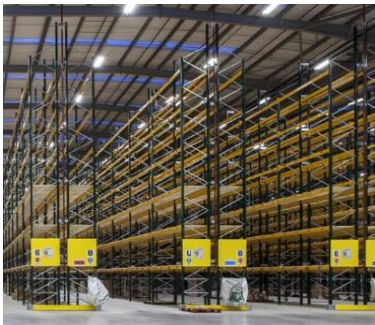
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SHIELD FORMPLY - Best Practise for Warehousing & Storage

Shield F17 Class 2 Formply is designed and manufactured to AS 6669: 2007 - 2016 strictest standards with Shield meeting their obligations as a manufacturer and supplier through its strict quality control measures and having met international accreditation to achieve AS 6669: 2007 - 2016 standards.

Once packed and shipped, Shield maintains a strict logistics process through to its Class 5 warehousing where the formply remains in a dry clean environment ready for dispatch.



While achieving a Class 2 finish remains an obligation by all parties on a construction worksite, Shield ensures that their obligations are met once the Shield F17 Class 2 formply is handed over to the client Formwork PCBU.

Shield provides best practice with its storage solution to provide appropriate high standards of; storage, handling, and logistics support to their end user Formwork PCBU's.

This guarantees that Shield Formply is already on the pathway for best practises when Shield Formply is transferred over to their clients on delivery day.

Shield's Formwork PCBU's clients know they are receiving a premium grade formply product for their Class 2 projects from the Shield warehouse.



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SHIELD FORMPLY - Codes of Practise for Formwork PCBU's

Formwork Codes of Practises are those stipulated by the Australian Standards as well as each Australian State's and Territory's Safe Work or Work Cover Codes of Practises for Formwork.

These Codes of Practises and Standards apply to all PCBU's engaged in the Formwork industry.

References Sources:

Australian Standards: AS 3610.1 - 1995: Formwork for Concrete,

Australian Standards: AS 3610:1 - 2010 Formwork Part 1 - Documentation and Surface Finish

Australian Standards: AS 3600 Concrete Structures

Plus, each State or Territory has a Code of Practise for Formwork PCBU's that is also overseen by the Commonwealth Department of Safe Work Australia.

NSW: *Code of Practise—Formwork 1998 pursuant to Section 44A of the Occupational Health & Safety Act 1983*

QLD: *Formwork Code of Practise 2016 - Section 274 of the Work Health and Safety Act 2011 (Workcover Qld)*



Obligations of Formwork Persons Conducting Business or Undertakings (PCBU's).

A PCBU means a **Person Conducting a Business or Undertaking**. It's a broad concept used throughout HSWA to describe all types of modern working arrangements which we commonly refer to as a business.

A Formwork PCBU (business) therein takes upon themselves the responsibility and accountability to ensure that their Formwork Work Practises meet the COP's for the State / Territory of operation.

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SHIELD FORMPLY - Obligations of Formwork PCBU's with Shield Formply

It is the duty of the Formwork PCBU to educate their worksite parties; transport companies, framers, riggers, reinforcement installers, concreters and formwork strippers who receive and handle Shield formply how to manage it to obtain the required Class 2 finish.

SHIELD FORMPLY BEST PRACTICE STATEMENT - TRANSPORTATION

Shield Formply comes in packs of 40 sheets of 1800 L x 1200 W x 883 H at a weight of 993kg and are prepared to be lifted by forklift onto an open truck trailer.

Shield uses qualified warehouse personnel with forklift expertise for loading onto truck trailers.

Transportation Best Practises

- Formply packs should be **transported when not raining** to avoid moisture penetrating the packs. Otherwise cover the formply packs with canvas tarpaulins if raining during delivery is unavoidable.
- **Edge Blocks or hardened plastic edge trims are used to protect the edges** of the formply packs when securing the load straps to avoid damage to the edges of the formply caused when applying downward pressure to secure the loads.
- **When unloading** - ensure that the edges and sides are protected against accidental damage caused by forklifts or other machinery.
- **Use of accredited synthetic weight slings** also avoids damage if using cranes to lift onto site.
- Unloaded packs need to be **placed in dry locations or undercover** if delays are expected in their use. Packs can be stacked at a maximum of 3 high.
- The **drivers signature on warehouse POD's** certifies that the load has been inspected before leaving the Shield warehouse, indemnifying Shield of future claims against damaged packs.



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SHIELD FORMPLY BEST PRACTICE STATEMENT - STORAGE

Shield Formply is intended to remain dry and clean before used in it's designed application for holding wet concrete under intensive curing heat. Shield Formply will meet it's designed requirements when appropriate storage is conducted by the Formwork PCBU.

Storage Best Practices

- **Stored flat in its original pack of 40** with sheets removed as required and inspected before use for scratches or damaged waterproof edge membrane.
- **DO NOT store on its edges** which increases the risk of the waterproof edge membrane being damaged.
- **Stored in dry conditions** and undercover if possible
- **Stored in shade** away from direct sunlight if placed outside.
- **If stored outside, use canvas tarpaulins** and not plastic sheets to protect the sides and tops from weather until needed.
- **Cordon of the formply storage area** with Hi VIS markers to prevent machinery driving into the packs or site personnel using the formply packs as a work bench.
- **Keep oils and flammable chemicals off the formply** to avoid damage to the black film. Contaminates dropped onto sheets like oils, machinery fluids, or chemicals need to be cleaned off at the earliest and then the sheet inspected for damage before use.
- **Inspect formply sheets** before use to ensure all edges and sides are not damaged
- **Meeting storage best practises** is a Formwork PCBU obligation and duty of care responsibility
- **As a footnote**, if the 'matt black film' on the formply is defective, it will not result in a black stain on the finished concrete services. Defective black film results in a pink stain that fades over time.



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SHIELD FORMPLY BEST PRACTICE STATEMENT - INSTALLATION

Shield Formply when used under AS code of work practices for installation by Formwork PCBU's will provide a Class 2 finish.

Installation Best Practices

- **Qualified skilled framers and formwork personnel** should be used when installing formply into position. Qualified personnel will know the Best Practises for placement of formply to ensure a Class 2 finish.
- This includes the placing of formply into position. **Avoid dropping formply** into position using one edge as a cantilever while the weight of the board (up to 28kgs) drops onto the joists and bearers beneath. **Dropping increases likelihood of damage to edges and corners allowing water access.**
- **NB: Under AS 6669: 2007 - 2016** there are no design standards or requirements specified on how formply should perform if it is cut, drilled, nailed or screwed. This means that formply is not designed to be cut, drilled or pierced by screws or nails which damages its special waterproof characteristics.

WHAT DOES THIS MEAN? Translated, this means that once a Formwork PCBU allows the cutting or drilling of an AS 6669: 2007 - 2016 certified formply sheet, they have officially 'damaged' the sheets special qualities and by this act, the Formwork PCBU becomes accountable for the performance characteristics of the formply they have just altered, indemnifying the manufacturer against claims.

- Where cutting, drilling, nailing or screwing is unavoidable or required, ideally the use of sharp bits and blades should be used to minimise the impact. Resealing the cuts and holes with a waterproofing sealant to minimise adverse effects is also strongly recommended.
- A reminder that formply is defined technically as a consumable construction material.
- Use of 'water based release agents' on the formply during installation is recommended. **DO NOT** use oil-based release agents as this also contravenes Work Safe Codes of Practice.



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SHIELD FORMPLY BEST PRACTICE STATEMENT - CONCRETING

Concreting has its own Standards under AS 1379 - 2007 and is its own science. The performance of concrete is highly dependent of the skills of the Concreting PCBU's and their people.

Remembering that formply is the form to which the wet concrete is the 'cake'. The outcome of the final Class 2 finish is very much dependant on the workmanship of the concrete and concreters (Chef's).

Concreting Best Practices

- **Qualified skilled concreting personnel** should be used pouring and working the wet concrete. Use of vibrators should avoid damage to inside panels of formply which could cause 'burn' marks on the formply providing a scar on the finish.
- **Bugging** is a term used when air pockets form from bubbles of air that have not been properly removed resulting in 'bug holes' once dried.
- **Proper vibrating techniques** liquefy the wet concrete sufficient to provide maximum consolidation while removing the air bubbles.
- **Cold Joints** are the result of two separate concrete pours not mixing or consolidating due to; time delays in the pour, different concrete consistency, inadequate vibrating or poor concreting workmanship.



- **Discolouration of Concrete** is caused due to contaminates that have been on the formply (*potentially oil-based release agents or oils spiled while installed or in storage on site*), changes in concrete mix or efflorescence. This is an outcome of external factors while onsite and not a factor of the failure of the matt film of the formply.



If the black matt film of Shield formply sheets were to fail, it could cause pink stain (not black) and fades over time.

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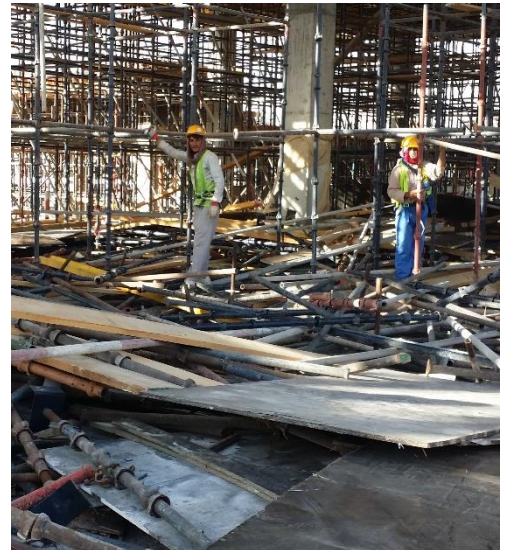
SHIELD FORMPLY BEST PRACTICE STATEMENT - STRIPPING

As with the erection of formwork structures before the pouring of concrete, stripping is the systematic removal of the all formwork structures and materials including the removal of the formply from the walls and ceilings. Stripping is conducted only after a qualified engineer certifies the approvals necessary to commence work.

Note: A reminder that formply is defined technically as a consumable construction material and that stripping involves the removal of formply from dried concrete structures.

Stripping Best Practices

- **Official Certificate for stripping to commence** from the project engineer is required before work can commence to ensure the concrete structures have achieved their designed strengths and will not collapse.
- **Formply that has been “Drop Stripped”** is most likely to be damaged due to the formply falling from heights while under load. This formply should be inspected for damage. If the Formwork PCBU decides to re-use this formply than the quality for the next project is entirely dependent on this inspection and decisions made by the Formwork PCBU.
- **Serious consideration** on the future Class finish of used formply becomes the sole responsibility of the Formwork PCBU.
- Regardless of site practices a **Class 2 finish is generally only achieved on the first pour** for each face.
- While Shield Formply is designed and manufactured for multiple uses, Shield are unable to be held accountable for how the Formwork PCBU manages the formply once used across multiple projects due to its consumable nature and heavy punishment.



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SUMMARY

The construction of multi storey buildings and structures using concrete is a science supported by Codes of Practises adopted by all parties engaged in the construction and formwork industry.

Quality products used on these construction sites are backed up with strict Australian Standards designed to provide consistency in the performance of how construction materials perform to ensure safe work practises align with the individual PCBU's work method statements for their personnel.

Under Australian law, formply, being just one component of the formwork equation is required to meet strict standards under AS 6669: 2007 - 2016.

Shield Formply F17 Class 2 meets those standards as well as being recognised as a premium grade formply in Australia. Shield maintains best practises from storage to transfer of ownership on delivery.

However, once the transfer of ownership of Shield Formply is complete during the delivery process at its warehouse. It then becomes the responsibility of the Formwork and Concreting PCBU's to educate their people on how to achieve optimum Class 2 finishes of the Shield Formply by conducting proper;

- Appropriate Transportation Methods
- Appropriate Storage Methods
- Appropriate Installation and Usage Methods
- Appropriate Duty of Care when Stripping and Re-Using of used formply

For a technical PDF on Shield Formply please go to: www.shieldgroup.net.au and find the Shield Formply Brochure under Products & Services - Formply.

Download Shield F17 Class 2 Brochure

Download Now



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