CONSTRUCTION PRODUCT CONFORMANCE DATA

A Manufacturer and Supplier guide to managing product conformance data

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Contents

This Guide has been prepared by the Building Products Innovation Council (BPIC) as general guidance only. It is not a substitute for professional, independent technical advice.

Definitions

Barcode – A proprietary (GS1) optical, machine-readable, representation of data; the data usually describes something about the object that carries the barcode.

BIM (Building Information Modelling) – Also known as DE or digital Engineering is a process involving the generation and management of digital representations of physical and functional characteristics of products and places, which can be extracted, exchanged or networked to support decision-making regarding a building or other built asset.

GS1 – An organisation that develops and maintains global standards for barcodes that are symbols printed on products that can be scanned electronically (https://www.gs1.org/).

Machine Readable - Data (or metadata) in a format that can be easily processed by a computer. To achieve that information must be classified or put into a systematic arrangement or division of materials, products, systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.

NCBP (Non-Conforming Building Product) - Products and materials that claim to be something they are not, do not meet required standards for their intended use, or are marketed or supplied with the intent to deceive those who use them

NCBP-CoR –Non-conforming Building Products – Chain of Responsibility legislation that sets out new minimum necessary product conformity data requirements and building supply chain participant obligations (e.g. http://www.qbcc.qld.gov.au/non-conforming-building-products/your-responsibilities).

NCC - National Construction Code (NCC) provides the minimum necessary requirements for safety, health, amenity and sustainability in the design and construction of new buildings (and new building work in existing buildings) throughout Australia (http://www.abcb.gov.au/Resources/NCC).

QR Code - Quick Response Code is a type of matrix barcode (or two-dimensional barcode) which is a machine-readable optical label that that can be scanned by smartphones or tablets and contains information about the item to which it is attached. The QR code system is popular due to its fast readability and greater storage capacity compared to standard barcodes.

RFID - Radio-Frequency IDentification uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information.

Serialisation - The process of putting a unique mark or code on a product, which can then be scanned by a consumer to verify the product's authenticity.

Introduction

Purpose of this Guide

This guide will help building product manufacturers, suppliers and installers to manage product conformance data under new minimum necessary Non-Conforming Building Product - Chain of Responsibility (NCBP-CoR) legislation requirements and new National Construction Code (NCC) requirements.

Use of this Guide

This guide has been written to link with the existing framework of building laws across Australia and the use of the National Construction Code (NCC) as referenced in those laws.

Acknowledgement

This Guide makes use of information provided by:

• **buildingSMART Australasia (bSA)** - http://buildingsmart.org.au/

• **New Zealand Ministry of Business, Innovation and Employment** - https://www.building.govt.nz/

BPIC has used this information under a Creative Commons (CC) license and thanks both organisations for their support.

Disclaimer

While BPIC has taken every care in preparing this document, it should not be relied upon as the basis of any requirements of NCBP-CoR legislation or the NCC as they relate to building work or the use of building products. Readers should always refer to the relevant NCBP-CoR Act and/or the NCC and connected regulations as the source documents, and be aware that for particular situations or problems, it may be necessary to seek independent legal opinions about what could or should be done about a situation.

Minimum Product Conformance Data Context

The building product conformance landscape in Australia is rapidly changing. This is the result of industry lobbying calling for improvement in product conformance standards, and government responding to product conformance failures. In the first instance, industry has been warning for some time about the proliferation and consequences of NCBPs in the supply chain with reports such as Ai Group's "The quest for a level playing field" released in 2013 as well as the ongoing

advocacy work of BPIC and the Construction Product Alliance. Added to this effort was the release of the APCC's "Procurement of Construction Products: Guide to achieving compliance."

In the second instance, governments have had to take action to control the incidence of NCBPs. Responding to recent building apartment fires, the growth of non-conforming products in the supply chain, and recognition that there is a disproportionate responsibility for building product conformance checking at the end of the supply chain (e.g. by builders and building surveyors), steps are being taken to overhaul building product conformity law, regulations and codes.

Federal and State building regulators are implementing Non-Conforming Building Product - Chain of Responsibility (NCBP-CoR) legislation that places obligations on all building supply chain participants (product designers, manufacturers, importers, suppliers and installers) to ensure building products are safe and fit for their intended use. At the same time, the National Construction Code (NCC) Evidence of Suitability provisions are being upgraded, including the option of demonstrating product conformance through Product Technical Statements (see **Attachment 1 – Example Product Technical Statement (PTS): Insulation**).

The NCBP-CoR and new NCC requirements share common characteristics or "required information". This required information (product conformance data) will need to accompany all products in the building supply chain:

- A unique identifier to make sure different users are referring to the same product and its intended use.

- Details of the manufacturer, importer or supplier.

- Date of issue (or revision) of product data and relevant links so users can confirm they have the latest version.

- Purpose and use:

    o A statement of where and how the product can be used, employing recognised Australian terms (e.g. high wind, seismic and corrosion zones).

    o Any limitations on that use of the product.

    o How to associate it with other products (e.g. plumbing assemblies, waterproofing systems, etc).

- A statement of the relevant NCC clauses and Australian Standards for the product and clear links to evidence to support any compliance claims (e.g. relevant test reports, technical opinions, product certification details or other supporting information).

- Links to design, construction or installation instructions to help designers specify the product correctly and builders and tradespeople to install it.

- Links to maintenance requirements so the building owner can maintain the product effectively, and a clear statement of the potential consequences of not undertaking specified maintenance.

- Contact details for technical support; ideally for Australian-based organisations that can provide product advice and assistance.

- Warranty information (if applicable).

Examples of how the required information might accompany a product include:

- Affixed to the product, on or in, the packaging for the building product.

- Via QR code, barcode, RFID or other electronic means of linking to a website or other digital data repository that contains the required information, affixed to the product, on or in, the packaging.

- If it is not 'reasonably practicable' for the required information to accompany the building product (e.g. loose products [broken batches], variable-measure products [sawn timber] , small and hard-to-mark products [screws, nails] and amorphous products [premixed concrete]) it needs to be made otherwise available to the next person in the chain of responsibility.

Manufacturer and Supplier Product Conformance

There are a number of strategic decisions you will need to make in relation to preparing new product conformity information. The most important being, should you undertake the process on your own, or are you better served by partnering with your relevant product Industry Association?

GOING IT ALONE

If you decide to embark on updating your product conformity information on your own you might consider the following steps:

Step 1 – Conduct research to determine the best examples of existing hardcopy and digital product data and compliance documentation from your industry (both in Australia and overseas).

Step 2 – Determine how you are going to present the required information:

• Affixed to products, on or in, the packaging for the building products. This path might appeal to constituents that are not willing to digitise their product data. While this approach satisfies NCBP-CoR supplier obligations to pass the "required information" to the next person in the supply chain, it may not satisfy a further obligation for the person who installs that building product to be able to give the required information to the owner of the building. At face value it might seem easy and cost-effective to simply print the new required information onto a product or its packaging (or both), but this can create problems for people along the supply chain. For example, once a product has been installed, or prior to purchase when a product and its packaging are not physically present. It may also create a purchasing disincentive if people in the building supply chain cannot easily access and pass on all the required information about a product.

• Scanned or extracted from existing data sheet PDFs, brochures, paper documents or Excel/database product data, into a digital format that is machine readable (classified) and that satisfies NCBP-CoR, NCC and BIM/DE requirements. This is the most effective way to meet all the NCBP-CoR supplier obligations and can supplement on-product or on-packaging conformance information.

Step 3 – Link your newly digitised product conformity data to a digital data repository that contains the required information via QR code, barcode, RFID or other electronic tagging device. In making this decision, be aware that there are two main options available. These two options are not mutually exclusive and some suppliers might see advantage in doing both:

Option 1   Create your own unique company-specific identification numbers for your products, then mark your products with QR Codes (Quick Response Codes). The QR Codes are linked to "required information" held in an industry product data repository that you will need to create. QR Code generation is free, data repository is maintained by your company, and scanning technology is free and publicly available (e.g. through mobile phone apps).

Option 2   GS1 – You are assigned Global Trade Item Numbers (GTINs) for your products. You mark products with machine-readable data carriers such as linear or two-dimensional barcode or RFID technology. These unique identifiers are linked to "required information" held in a National Product Catalogue (NPC) managed by GS1. Barcode production, data repository and scanning technology is all proprietary, and requires ongoing license payments by manufacturers to GS1.

Step 4 – The previous step (Step 4) will get you to the minimum necessary product conformance requirements. However once product data has been digitised, a whole world of possibilities opens up. Consider taking the next step of upgrading your newly digitised product conformity data to be BIM (Building Information Modelling) compliant, so you can share your data with your customers and specifiers in the languages/BIM formats that they require it in. Please refer to the example in **Attachment 2 – Example BIM Object: Insulation** and note that it is the same information that is provided in Attachment 1 – Example Product Technical Statement (PTS): Insulation, only now it is in machine-readable format and compliant to international BIM standards.

Step 5 – Promote the added-value services you offer on your websites and link to them from within your digitised product conformity information. Examples might include evidence of the quality of the offering, case studies and testimonials, design services, the provision of CPD and the availability of operation and maintenance literature.

PARTNERING WITH YOUR RELEVANT PRODUCT INDUSTRY ASSOCIATION

The above steps are very similar if you decide to partner with your relevant product Industry Association. But the advantages are worth considering and include:

• The effort required to research and establish the format of the required information for your product sector will be shared and not yours to carry alone.

• You will benefit from a format that will be common across the product sector, creating a level-playing field for everyone.

• No need to set up your own product data repository and incur the substantial capital and ongoing maintance costs, as this is taken on by the Industry Association.

• Customers and specifiers are more likely to interrogate a consolidated industry database like the one held by an Industry Association, rather than trawl through individual manufacturer and supplier websites looking for conformity data.

• Customers and specifiers are more likely to trust the product conformity information held by an Industry Association rather than that from individual suppliers.

• Your products will be associated with an industry recognised brand promoted by the Industry Association.

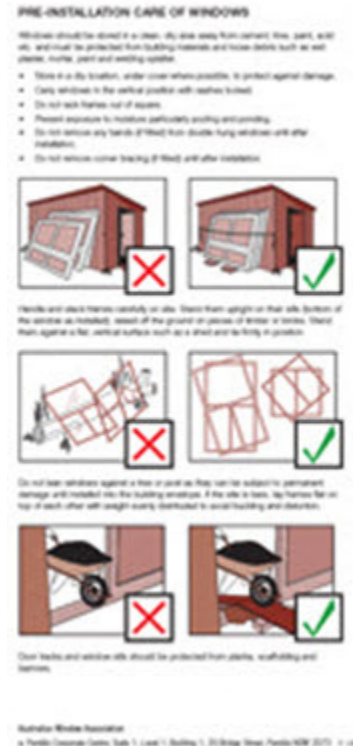# Example of QR Code Linked to Product Conformance Information

QR Code Printed on Product Package	**Customer Scans Code with Mobile Phone**	**Links to Required Information on Website**

In its simplest form, a customer aims a camera-enabled smart phone or tablet at the QR code, software deciphers it and then connects you to digital content on a webpage. One of the biggest benefits of QR codes is the ability provide extra information to product users without using up valuable packaging space and providing immediate access to relevant information (conformance data).

Example Product Data Digitisation Services

To quickly digitise a large number of products from multiple suppliers, Industry Associations might consider engaging with turn-key product data digitisation services. These services are set up to automate the product digitisation process and could provide a rapid response to the new NCBP-CoR requirements.

DISCLAIMER: The following listing of suppliers does not constitute endorsement, recommendation, or favouring by BPIC and these suppliers appear here only as examples of services that might be used.

miproducts (Masterspec)

New Zealand legislation already provides guidance for manufacturers and suppliers to establish and document that their products meet established performance requirements. In response Masterspec has created the "miproducts" Product Technical Statement (PTS) to allow the preparation of compliant documentation.

[https://masterspec.co.nz/Product-Technical-Statements/6679/]

GoBIM (coBuilder)

goBIM's Product Data Template (PDT) methodology allows manufacturers to digitise their information-rich PDFs/brochure and paper documents through filling in a data 'questionnaire' for each construction product or by linking to the manufactures PIM/DAM systems. Each PDT sets out groups of 'properties' that manufacturers have to fill in as 'values' in order to produce their individual Product Data Sheets.

[http://gobim.com/]

SpecifiedBy

SpecifiedBy, who provide a search and comparison website, are collaborating with the University of Glasgow, to develop innovative tools and processes, using AI, machine learning, big data and natural language processing technologies, which will automatically convert technical construction product information, contained within unstructured, static documents and websites, into structured digital data assets.

[https://www.specifiedby.com/]

SmartBIM Labs

Creating BIM objects since 2002 and can produce a variety of models for each product. Enables manufacturers to create, manage, edit and distribute their BIM content directly to specifiers.

[http://www.smartbimtechnologies.com/solutions]

Minimum Necessary Product Conformity Requirements

Building and Construction Legislation (Non-conforming Building Products – Chain of Responsibility and Other Matter) Amendment Bill 2017:

http://www.qbcc.qld.gov.au/non-conforming-building-products/your-responsibilities

National Construction Code (NCC):

http://www.abcb.gov.au/Resources/NCC

References

Australasian Procurement and Construction Council Inc (APCC) - "*Procurement of Construction Products: Guide to achieving compliance.*"
http://www.apcc.gov.au/ALLAPCC/APCC_Guide_to_Procurement_WEB%20and%20EPUB%20version.pdf

Australian Industry Group (Ai Group) - "*The quest for a level playing field*"
https://www.aigroup.com.au/policy-and-research/standardsregulation/researchproject/REPORT_NCP_FINAL.pdf

Building Products Innovation Council (**BPIC**) - http://www.bpic.asn.au/submenu1491260069/advocacy

Construction Product Alliance (**CPA**) - http://productalliance.com.au/Conformance

Housing Industry Association (**HIA**) "*Building Product Conformance and the BCA*" Information Sheets -
https://hia.com.au/Publications/InformationSheets.aspx?page=7&Region=NSW%7CQLD%7CWA%7CSA&-strategy

The Role of BPIC

The Building Products Innovation Council (BPIC) is a national peak body representing Australia's leading building products industries and related services (listed in the footer of this document) in:

Steel	Gypsum Board	Concrete	Quantity Surveyors
Insulation	Timber Products	Roof Tiles	Glass
Windows	Clay Bricks	Concrete Masonry	
Cement	Housing Industry	Insulated Sandwich Panels	

BPIC's members and associated companies directly employ over 200,000 Australians with more than 470,000 employed indirectly. Their collective industries are worth over $54B in annual production to the Australian economy. BPIC is a not for profit organisation governed by a Board of Directors comprised of representatives from its member organisations.

BPIC's primary objective is to provide coordinated representation of the building products industry to interested parties including Government, the construction industry, and the general public to help improve building and construction standards. We also provide a forum for discussion, information sharing and policy formulation among major product categories in the building industry. BPIC's mission is to:

• Promote the efficient production and use of building products within a nationally consistent regulatory environment.

• Develop policy and make submissions or representations to governments, industry and the community on agreed technical standards, codes and regulatory issues of mutual concern to Members.

• Promote the innovative use of building products.

BPIC works to fulfill these aims by gathering and supplying practical and current industry information on behalf of BPIC member organisations and other organisations and companies that are not members but follow BPIC through various means. This industry-wide approach to responding to regulatory issues, helps to ensure that Governments are informed of possible problems in the building industry and are provided with appropriate industry-considered responses. BPIC also encourages investment in skills formation, product development and industry research by helping to identify and remove regulatory impediments to innovation.

Attachment 1 – Example Product Technical Statement (PTS): Insulation

A PTS should *supplement*, not replace the technical information for a building product and reference any other documents that provide evidence to support conformance claims and the use of the product.

Company name and contact details	
Version and date	Product Technical Statement - Version 2.5.1 – 11/11/2017
Name of product	Thermacool Glasswool TC101012345
Product description	Thermacool is manufactured by spinning molten glass, containing up to 80% recycled content, into fine wool like fibres. These are bonded together using a thermosetting resin. The product can be identified by its dull beige appearance. It has a density of 44kg/m³ and is available in rolls 15m long, 1200mm wide and 25mm thick.
Purpose and use	Theracool is designed for the economic insulation of risers, plant rooms and silencers that require a higher thermal performance than standard insulation products. Typical applications include plant rooms and process vessels.
Conditions	Installation of Thermacool must be completed by an installer with an understanding of insulation installation, in accordance with the instructions given within TooCool's Installation Instructions.
Limitations	Thermacool is not to be used as a fire-proofing material, in damp or moist applications or in any situation where it is exposed directly to the elements. It must not be crushed, folded or used where the maximum operating temperature is above 120°C
Compliance with the NCC and Standards	The product will, if employed in accordance with the supplier's installation and maintenance requirements, meet the following provisions of the NCC and Australian Standards: • NCC 2016 Volume One – A2.2 (a) (ii) Certificate of Conformity by Codemark– refer to Test Report: NT/23572017-A (http://www.toocool.com.au/thermacool-compliance-report.pdf). Thermacool glasswool thermal resistance (R-value) has been determined by testing to AS/NZS 4859.1 which is an acceptable method for testing for the thermal insulation of buildings.
Design, construction and installation instructions	Internal wall segments for cavity walls, floors, ceilings, attics, basements and crawlspaces. It is highly resilient, recovering quickly to full thickness. It also greatly reduces the transmission of noise in buildings. Thermacool must remain in its packaging until installation and should be stored in a dry environment without any other material placed on top packaged rolls.
Maintenance requirements	None - Thermacool Glasswool may be permanently left in place once installed in accordance with TooCool's Installation Instructions.
Quality assurance	ISO 9001 (Quality Management)
Product support	Technical and installation support call 1300 WHATS UP or visit www.toocool.com.au
Warranty	Thermacool Glasswool is covered by a 10 year warranty.

Attachment 2 – Example BIM Object: Insulation

Insulation product data classified to IFC (Industry Foundation Class) standard and machine-readable (courtesy of buildingSMART Australasia).

Definition	Associated Classifications	
Name	BuildingElementPart_INSULATION_AU	
Description	INSULATION: The part provides thermal insulation, for example as insulation layer between wall panels in sandwich walls or as infill in stud walls. Template	
Type (IFC)	IfcDiscreteAccessoryType	
Pre-defined type (IFC)		
ElementType	INSULATION: The part provides thermal insulation, for example as insulation layer between wall panels in sandwich walls or as infill in stud walls.	
Identifier	1COBietyp9999D0EVEB999	
Tag	AU Product Template	
Pset_ManufacturerTypeInformation	**Characteristics of types (ranges) of manufactured products that may be given by the manufacturer.**	
Property Name	**Property Description and Allowed Values**	**Property Value**
ModelReference	The name used by the manufacturer	Thermacool Glasswool
ModelLabel	The model number assigned by manufacturer.	TC101012345
Manufacturer	The organization that manufactured or assembled the item.	
Pset_Specification	**Properties for AU Specification**	
Property Name	**Property Description and Allowed Values**	**Property Value**
Color	Characteristic or primary color of product.	Beige
Documentation	Location (Uniform Resource Information) for further product information	http://www.toocool.com.au/BuildingElementPart_INSULATION_AU.pdf
DocumentReference	Location (Uniform Resource Information) for the source or updates to this product information	http://www.toocool.com.au/BuildingElementPart_INSULATION_AU.ifcxml
Features	Features or other important characteristics relevant to product specification.	•Easily handled •Higher compressive strength •Resists damage •Maximum performance at minimal thickness •Provides both Energy and cost savings •Biosoluble material - safe to use •Approved for use on site by

		Unions
Grade	Standard grading(s) to which the product corresponds	44kg/m3
NominalHeight	Nominal height of product, typically the vertical or secondary characteristic dimension.	25mm
NominalLength	Nominal length of product, typically the larger or primary horizontal dimension.	15m
Material	Characteristic or primary material of product.	Glasswool
NominalWidth	Nominal width of product, typically the characteristic or secondary horizontal or characteristic dimension.	1200mm
Pset_ConformanceRequirements_AU+NZ	**Information necessary to demonstrate product conformance to AU and NZ requirements**	
Property Name	**Property Description and Allowed Values**	**Property Value**
CodePerformance	NCC or NZ Building Code compliance requirement(s) which the product satisfies	NCC 2016 Volume One – A2.2 (a) (ii)
ReferenceStandard	Reference standard(s) to which the product is compliant.	AS/NZ4859.1 Materials for the thermal insulation of buildings
PerformanceEvidence	Evidence to support any compliance claims	• Certificate of Conformity by Codemark – refer to Test Report: NT/23572017-A (http://www.toocool.com.au/thermacool-compliance-report.pdf). • Thermal resistance (R-value) has been determined by testing to AS/NZS 4859.1 which is an acceptable method for testing for the thermal insulation of buildings.
ConditionsOfUse	Where and how the product can be used.	Installation must be completed by an installer with an understanding of insulation installation, in accordance with the instructions given within TooCool's Installation Instructions.
DesignCriteria	Criteria to be applied in the design phase	Internal wall segments for cavity walls, floors, ceilings, attics, basements and crawlspaces. It is highly resilient, recovering quickly to full thickness. It also greatly reduces the transmission of noise in buildings.
ConstructionCriteria	Criteria to be applied in the construction phase	Product must remain in its packaging until installation and should be stored in a dry environment without any other material placed on top of

		packaged rolls
InstallationCriteria	Criteria to be applied at installation	Installation must be completed by an installer with an understanding of insulation installation, in accordance with the instructions given within TooCool's Installation Instructions.
QualitAssurance	Name of QA standard and reference Clause	ISO 9001 (Quality Management)
ProductSupport	URL or product support web/database	Technical and installation support call "1300 WHATS UP" or visit www.toocool.com.au

Pset_Risk	An indication of exposure to mischance, peril, menace, hazard or loss.	
Property Name	**Property Description and Allowed Values**	**Property Value**
RiskType	Types of risk	• Poor fire-proofing performance. • Degrades in damp or moist applications. • Degrades when exposed to the elements.
PreventiveMeassures	Measures to be taken to mitigate risk	Not to be used as a fire-proofing material. Not to be used in damp or moist situations. Not to be installed in a way that exposes the product to the elements. Must not be crushed or folded. Must not be used where the maximum operating temperature is above 120°C.

Pset_Warranty	An assurance given by the seller or provider of an artefact that the artefact is without defects and will operate as described for a defined period of time without failure and that if a defect does arise during that time, that it will be corrected by the seller or provider.	
Property Name (mandatory)	**Property Description and Allowed Values**	**Property Value**
Warranty	Warranty: manufacturer's_warranty other notdefined	manufacturer's_warranty
WarrantyPeriod	The time duration during which a manufacturer or supplier guarantees or warrants the performance of an artefact.	10 years from date of purchase