



**BOSMA SUBMISSION  
TO SENATE ENQUIRY  
INTO  
NON-CONFORMING BUILDING PRODUCTS**

**APPENDIX 2  
Non-conforming steel product examples**

**3rd August 2015**

# Compliance

- ✓ **Engineering News-Record (ENR) Article, 2010;**  
Counterfeit Construction Products, imported into U.S.A;

TOP 10 COUNTERFEIT CONSTRUCTION GOODS	
1	Steel
2	Fasteners
3	Valves
4	Pipe
5	Circuit Breakers
6	Rotating Equipment Parts
7	Electric Equipment
8	Pipe Fittings
9	Pressure Vessels
10	Cement

SOURCE: CONSTRUCTION INDUSTRY INSTITUTE



- ✓ Source: [www.enr.construction.com](http://www.enr.construction.com)

# Compliance

✓ **Worley Parsons: David Steele, Group Managing Director – Delivery (Malaysia)**

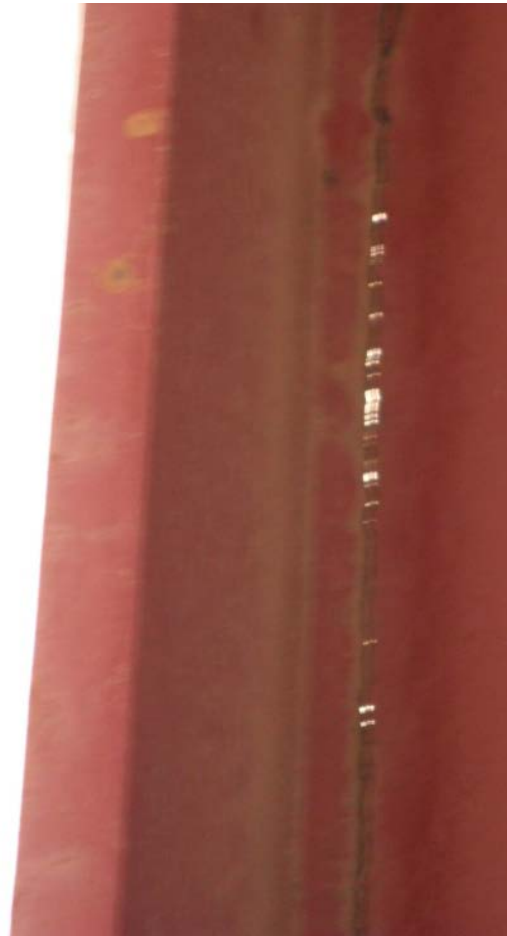
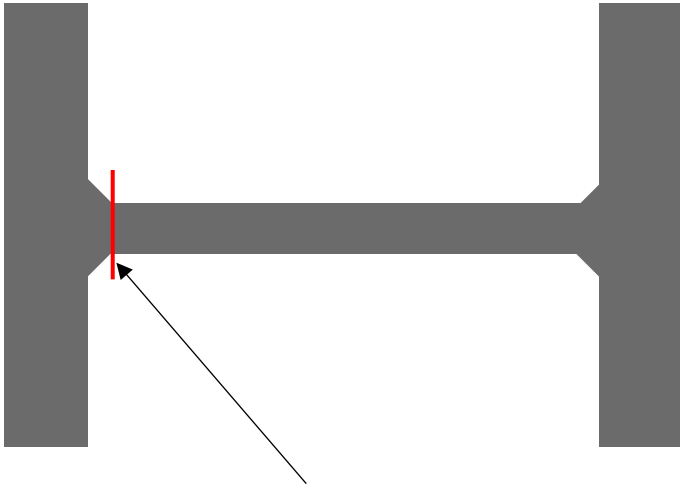
*“...The quality of the products produced for our industry has come under scrutiny recently due to the high incidence of low quality manufacturers and the rising occurrence of counterfeit (fraudulent) goods in the market place. Industry statistics have estimated that 14% to 22% of all specified materials used in metals based construction projects have been misidentified, mislabelled or misused...”*

*(Source: email, dated 18<sup>th</sup> January 2013)*



# What are the Risks of Non Compliant Product?

- Imported Steel in Warehouse Columns
  - Web-flange junction has cracked through during construction




# What are the Risks of Non Compliant Product?

- Pressure Vessel for Hydro-Electricity Industry




# Compliant Test Certificate



**TEST CERTIFICATE**

Page 1 of 1  
Certificate No.: W765641  
Transmission Date: 02/08/10

Customer:	Supplier: OneSteel Manufacturing Pty Limited Whyalla, SA - 5600, Australia A.B.N. 42 004 651 325
Ship To:	Sales Order No: 00112 Printed on: 03/08/2010



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Sampling undertaken by OneSteel Whyalla 15352  
Approved Signatory - M. Buhleich

Chemical results as identified are from Amdel Ltd, Whyalla 0834  
Approved Signatory - K. Barsby

Mechanical results as identified are from Amdel Ltd, Whyalla 0794  
Approved Signatory - I. Harrison

STEELMAKING: Basic Oxygen - Slab Cast  
SPECIFICATION: **AS/NZS3679.1-300**  
PRODUCT: **380PFC**

INSPECTION: Supplier  
CERTIFICATION: Supplier

**ITEMS COVERED BY THIS TEST CERTIFICATE**

Item No	Heat No	Customer Order No	Length
1268C	505909	FAX100545 3026	12.000
1269C	509919	FAX100545 3026	15.000
1269C	509920	FAX100545 3026	15.000
1270C	509900	FAX100545 3026	18.000

**CHEMICAL ANALYSIS**  
Percentage of element by mass (L=Cast, S=Product, -S=Soluble, -T=Total, CF=Chemical Formula, m=Min, x=Max)

Item No	Heat / Unit No	NATA Lab	LP	C	P	Mn	Si	S	Ni	Cr	Mo	Cu	Sn	Al
1268C	505909	0834	L	.180	.014	1.34	.180	.014	.004	.010	.001	.026	.005	.002
1269C	509919	0834	L	.158	.014	1.44	.200	.013	.006	.027	.002	.024	.005	.001
1269C	509920	0834	L	.168	.016	1.49	.180	.016	.006	.028	.002	.030	.005	.001
1270C	509900	0834	L	.171	.020	1.37	.190	.009	.008	.018	.001	.015	.001	.002

Item No	Heat / Unit No	NATA Lab	LP	Nb	Ti	B	V	N	Ca	Zr	CF1
1268C	505909	0834	L	.001	.001	.0004	.001	.0058	.0001	.001	.41
1269C	509919	0834	L	.001	.001	.0003	.001	.0040	.0001	.001	.41
1269C	509920	0834	L	.001	.001	.0003	.001	.0037	.0001	.001	.42
1270C	509900	0834	L	.001	.001	.0003	.001	.0066	.0005	.002	.40

CF1=C+Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

**MECHANICAL TESTING**  
*Tensile*

Item No	Heat No	Tested Unit	NATA Lab	Test Report	ReH MPa	Rm MPa	ELONGN %
1268C	505909	505909	0794	50454	330	490	32
1268C	505909	505909	0794	50454	330	500	31
1269C	509919	509919	0794	50737	320	470	35
1269C	509919	509919	0794	50737	325	470	36
1269C	509920	509920	0794	50737	335	500	33
1269C	509920	509920	0794	50738	335	480	34
1270C	509900	509900	0794	50737	340	500	32
1270C	509900	509900	0794	50737	325	470	34

Yield Strength - determined in accordance with requirements of nominated product standard

**COMMENTS**  
OneSteel Whyalla is quality endorsed to AS/NZS ISO9001 under SAI GLOBAL Lic. No. - QEC0351.  
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"I certify the conformance of the material to the requirements and that the information on this certificate is in accordance with the records of the company."

Page 1 of 1  
**Certificate No.: W765641**  
Transmission Date: 02/08/10

**Supplier:** OneSteel Manufacturing Pty Limited  
Whyalla, SA - 5600, Australia  
A.B.N. 42 004 651 325



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**STEELMAKING:** Basic Oxygen - Slab Cast  
**SPECIFICATION:** **AS/NZS3679.1-300**  
**PRODUCT:** **380PFC**

**18 elements listed, including 13 "mandatory" elements**

# Non Compliant Test Certificate

**Should reference AS/NZS 3679.1 - 2010**

MILL'S TEST CERTIFICATE																
客戶名稱 Sold To							產品名稱 Product		HOT ROLLED FLAT BAR			證明書編號 Certificate No.				
規格名稱 Specification		<b>AS3679 GRADE 300</b>					客戶訂單編號 Ordering No.					證明書日期 Certificate Date				
檢測編號 Test No.	尺寸及規格 Material Description					爐號 Heat No.	拉伸試驗 G.L. > 200mm MECHANICAL PROPERTIES			彎曲 試驗 Bend Test 180°	化學成份 Chemical Analysis %					註釋 Notes
	厚度 thick (mm)	寬度 width (mm)	長度 Length (m)	數量 QTY (pcs)	質量 Mass (kg)		降伏 Y.S. (N/mm <sup>2</sup> )	抗拉 T.S. (N/mm <sup>2</sup> )	伸長 Elongation (%)		C	Si	Mn	P	S	
Specification							Remark	Min 440	Min 22		max	max	max	max	max	
98082802	16	200	6	51	7686	R643	325	478	29.5	OK	18	24	75	4.0	4.0	
98082501	20	200	6	39	7347	19683	329	500	28.5	OK	19	25	85	0.5	0.7	
99022801	25	200	6	11	2591	35	310	456	31.5	OK	17	23	83	2.9	1.2	
99022302	16	300	6	22	4974	09104896	331	490	32.0	OK	16	20	71	1.2	1.2	
99020901	20	300	6	9	2543	09104804	305	465	32.0	OK	16	19	70	1.5	3.0	
Total					25.141											
備註 Remark													THICK < 11 mm ⇒ min Y.S 320 N/mm <sup>2</sup> 11 ≤ THICK A ≤ 17 mm Y.S 300 N/mm <sup>2</sup> 17 < THICK < 40mm ⇒ min Y.S 280 N/mm <sup>2</sup>			
We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification.										報告簽署人 Laboratory Signatory		Jeffrey AUTHORIZED SIGNATURE				
慈輝鋼鐵股份有限公司 品質部實驗室 (地址: 彰化縣伸港鄉全福工業區工人路6號)																

**Certification not valid as there's no ILAC logo or reference**

**Only 5 (vs. 13) listed**

# What are the Risks of Non Compliant Product?

*The Canberra Times* Saturday, May 14, 2005



**COURT RULING:** The hangar that collapsed at RAAF Fairbairn on May 7, 2003, injuring 12 workers. The company that controlled the site was cleared yesterday by a Canberra magistrate of a charge that it had breached health and safety regulations.

Photo by courtesy of the Canberra Times



# AS 4100 – Steel Structure Standard

- AS 4100: Steel Structures (Steel Design Standard)
  - AS 4100 was written only around Australian Material Standards
    - Chemical, Mechanical, Dimensional, Manufacturing Methods, Quality...
    - Capacity (“Safety”) Factors calibrated into AS 4100 from these.
    - Take account of variations in material strength, properties & sizes, inaccuracies in design equations, accidental eccentricities & so on...
    - Rules for behaviour in Design, Brittle Fracture, Weldability, Fatigue, Fire.
  - AS 4100 is the only complying Design Standard for Structural Steel referenced in the Building Code of Australia

# AS 4100 – Steel Structure Standard

## ➤ AS 4100: Steel Structures (Steel Design Standard)

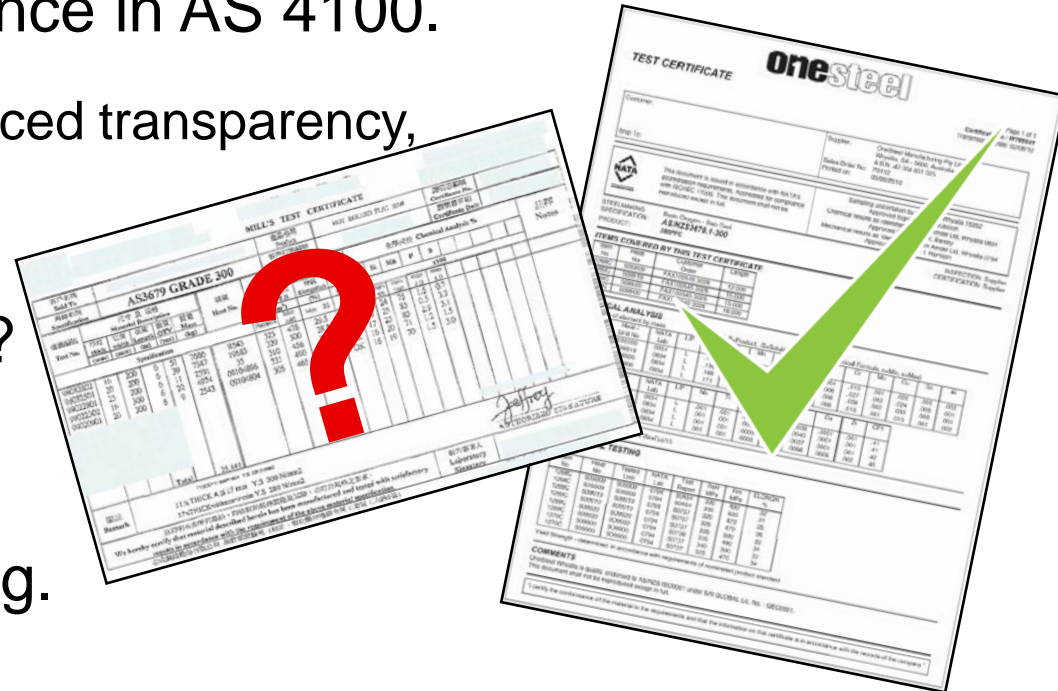
➤ Mill Certificates (*as per AS/NZS 3679 & 1163*) are the **ONLY** accepted Evidence of Compliance in AS 4100.

➤ New requirements provide enhanced transparency, traceability & testing protocols

➤ Is there a **Valid** Mill Certificate?

➤ Otherwise, need extensive statistical &/or laboratory testing.

➤ Or AS 4100 deems steel be “Unidentified”, engineer must down-rate steel to **170 MPa** yield strength (or less), cf. 300 → 450 MPa



# Future Market Directions

## ➤ Third Party Product Certification System

- ACRS – Australasian Certification Authority for Reinforcing and Structural Steels
- Why ACRS?
  - Existing model for construction steels
  - Only assess Australian & NZ Steel Standards
  - Independent Board & Australian based
  - Designers, Specifiers, Customers & Suppliers
- ACRS has assessed Reinforcing and Prestressing steels since 2004
- ACRS assesses Structural Steels as of January 2011



# Future Market Directions

## ➤ Third Party Product Certification System

- Advantage of Third Party Product Certification?

Party	Who	What it means for products
1 <sup>st</sup>	Supplier	“I am good” (“because I say so”)
2 <sup>nd</sup>	Customer or User	“They are good” (I’ve checked them myself)
3 <sup>rd</sup>	Certifier (“Indirect 1st party”)	“They are good” (but supplier commissions tests)
3 <sup>rd</sup>	Independent Certifier	“They are good” (certifier in full control of testing)

Source: ACRS

# Future Market Directions **fety UK**

## **STRUCTURAL SAFETY (aka CROSS / SCOSS UK)**

- ✓ **Independent body based in UK.**
- ✓ **Issues Reports & Alerts on matters of structural safety**
- ✓ **Recent Report on non-compliance and falsification of certification from overseas steelwork supply,**
  - ✓ *Structural Safety UK “...has become aware of a number of instances where certification accompanying proprietary products has stated compliance with standards or specified requirements, but the products have been found not to be in accordance with specification. On several occasions, this has led to premature structural failure of the component at loads well below the intended design.”*
- ✓ **Structural Safety: [www.structural-safety.org](http://www.structural-safety.org)**

## **MASONRY WALL TIES**

### ***Non-compliant wall ties***

***Building surveyors and builders should be aware that some non-compliant wall ties are finding their way onto our building sites.***

***In order to protect the unwitting builders and homeowners who may be seriously affected in the future by the potential failure of this product in the construction of brick walls, relevant building surveyors should request the builder or the relevant sub-contractor to provide evidence that the wire ties used on the project comply with AS2699.1 – 2000.***

***Building Commission of Victoria  
21 October 2010***