

# SFS 25 YEAR ANNIVERSARY SEMINAR

Fire Testing Standards/NCC Applications

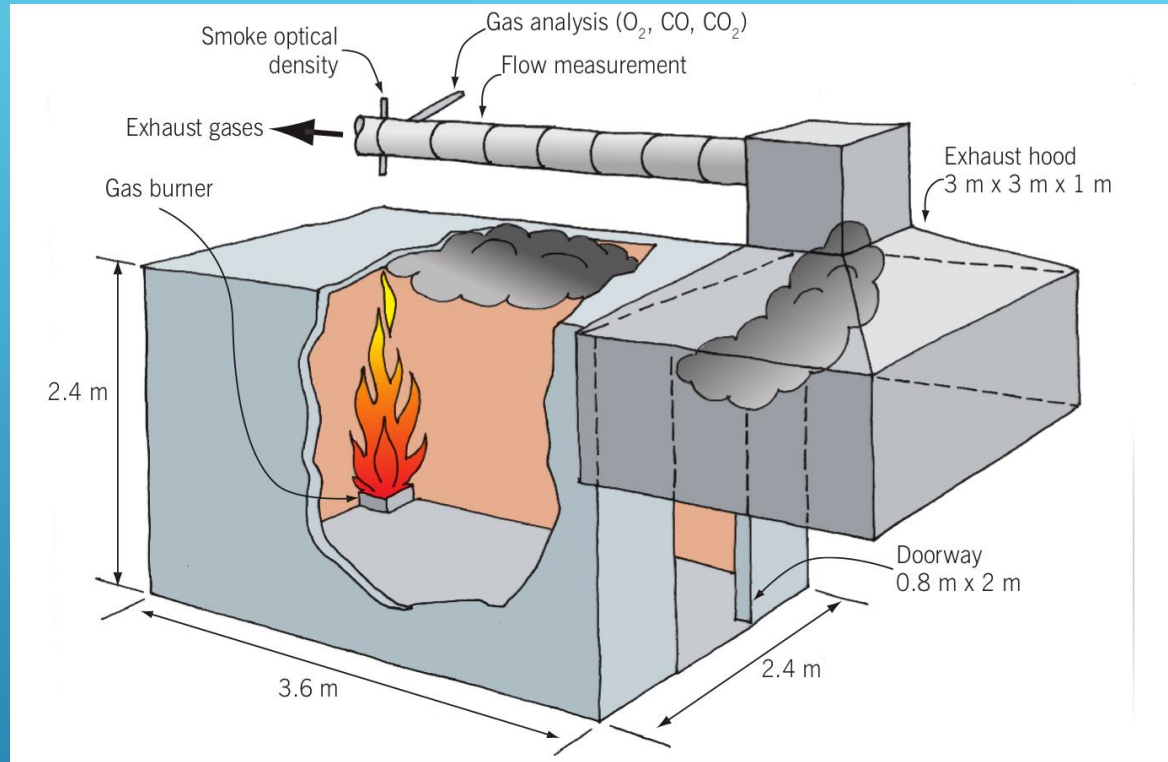
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## FIRE SAFETY ENGINEERING

- Building Industry Failures
- PI Insurance going through the roof
- The whole profession is under close scrutiny
- Methodologies under question
- Deemed to Satisfy and Verification being discussed – significant changes on the near Horizon
- Great care is needed by the profession moving forward

## ► Fire Test Standards/NCC



AS ISO 9705 – Determination of Group Number

# ONE RECENT AREA OF CONCERN

# DETERMINATION OF GROUP NUMBER – NCC VOL. 1 SPEC C1.10

Wall and Ceiling Linings – Soffits

NCC 2016 – AS 5637.1:2015 Determination of  
fire Hazard properties

Problem pre 2016 – Historic ambiguity and  
resultant interpretation resulting in gross  
misrepresentation of true fire properties

We have heard this before – ACP's!

Systemic problem?



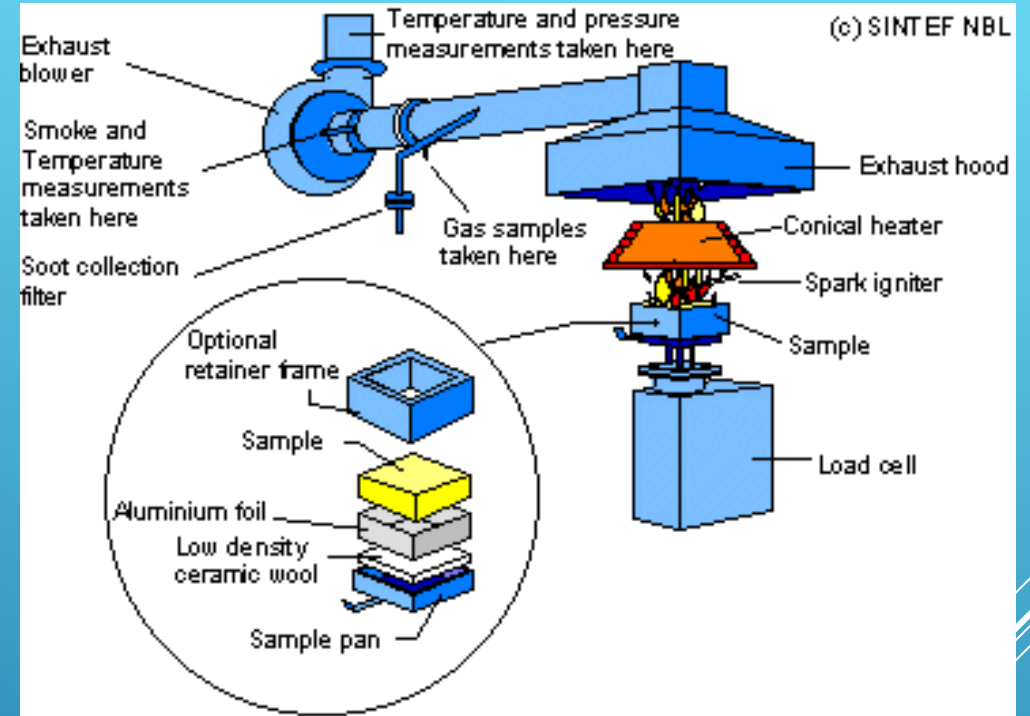
# HISTORIC

Pre 2015 NCC Group Number determined by either –

AS ISO 9705 or AS/NZS 3837 Cone Calorimeter

Early Editions of the BCA – ABCB loved the cone calorimeter method – cheap and easy vs the expensive AS ISO 9705 test.

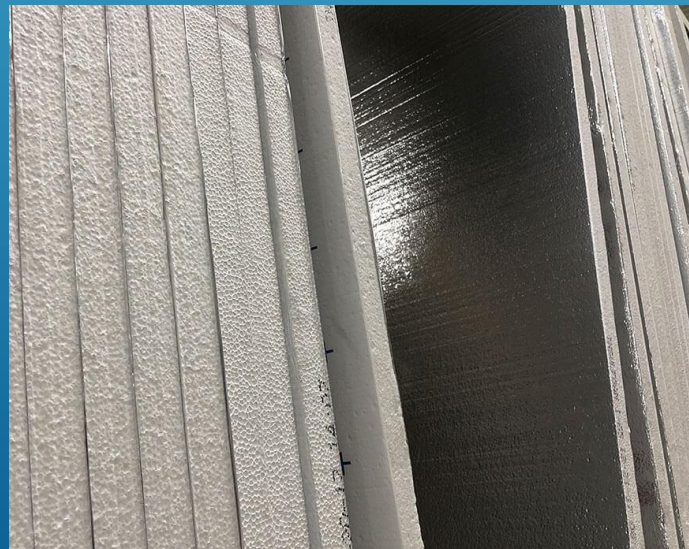
Issue - less than a handful of tests showing correlation – all homogeneous



# HISTORIC

Result – In some cases materials having a Group 1 rating per Cone test – actually performed to Group 4 in the ISO 9705 test.

Why – lack of correlation, physical properties and tested as finished product – laminated materials – soffit material with foil facing in cone calorimeter.



# INTERPRETATION

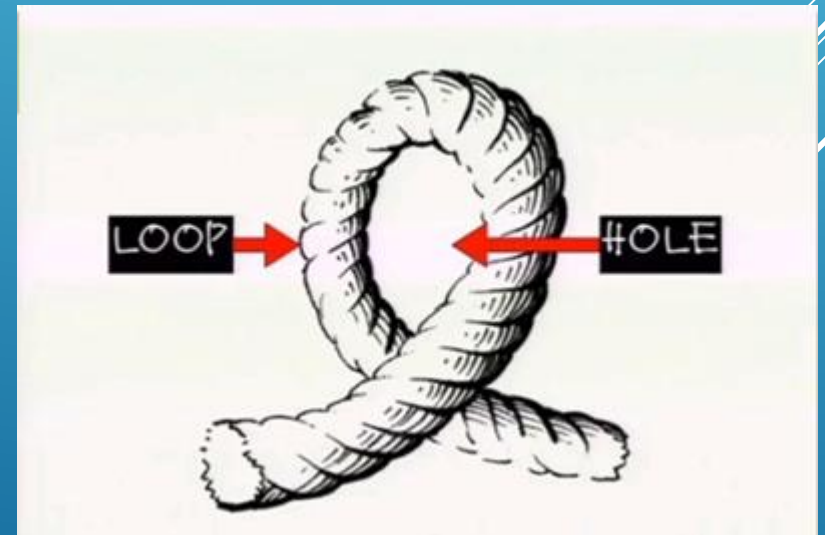
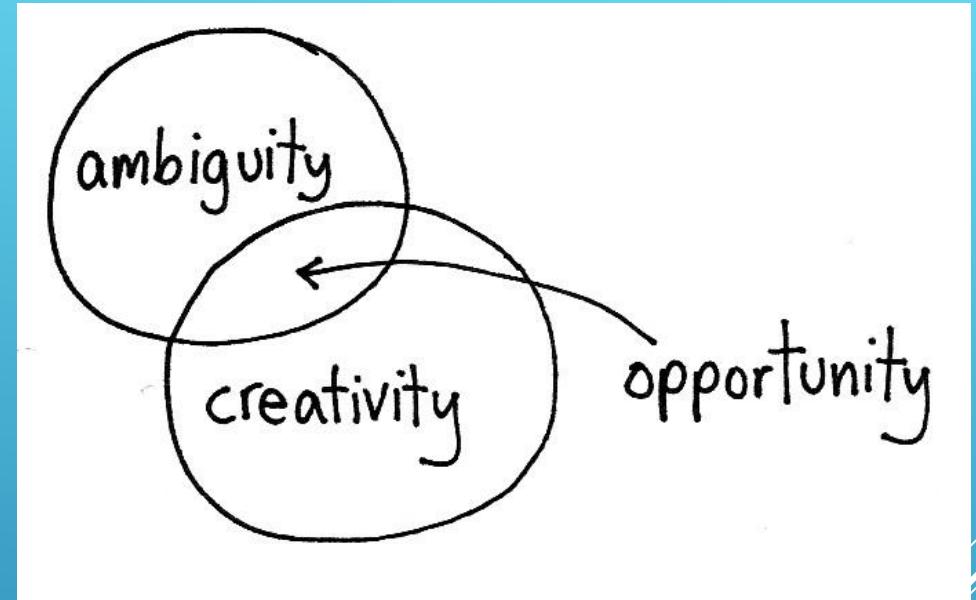
AS ISO 9705 Test Standard

Group Number – European based – 3 walls and ceiling

NCC referenced the test standard and provided guidance on determining Group Number – time to flashover – 1000 kW (1 MW)

Problem – AS ISO 9705 is a generic test standard – how to do the test and gave options for research testing – “In the standard specimen configuration, three walls and the ceiling are covered with the product. Alternative specimen configurations are given in (informative) annex G”. Mentions ceiling only or walls only – research work

The intent from day 1 was always the 3 walls and ceiling configuration to determine group number



# AS 5637.1:2015 – THE FIX NCC 2016

Severely restricted materials where AS/NZS 3837 could be used – refers back to known correlations.

For AS ISO 9705 test, Specimens shall be affixed to three walls and the ceiling

Issue – NCC allows a 3 year grace period for product retesting – ran out 1<sup>st</sup> May 2019

During this period fire safety engineers product compliance reviews were still being issued stating – Group 1, when Cone testing resulted in Group 3 and recently an ISO 9705 test demonstrated Group 4 performance – the definitive test.

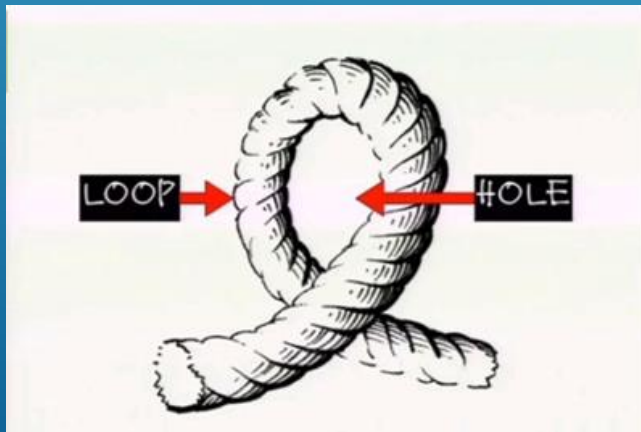
Where is the “Engineers Code of Ethics”





# AS 5637.1:2015 – THE FIX NCC 2016

Even now – after the grace period has run out, some manufacturers are still advertising and selling the product as Group 1 using the Fire Safety Engineers product compliance review



- Complies with Australian NCC and BCA regulations with certain applications
- CFC free with zero Ozone Depletion Potential (ODP) and contains zero Volatile Organic Compounds (VOC's)
- Australian made
- Uses chemicals and raw materials from Australian companies
- Low thermal conductivity which means it has superior thermal values
- Complies with AS/NZS 4859.1 (AS1366.2 aged)
- Group 1 when tested to AS 5637.1:2015 (AS ISO 9705-2003) soffit only application (Silver/White)
- Does not corrode metal
- Custom sizing and facing colours available

Is this what Fire Safety Engineering is all about?

# THE INDUSTRY GROUPS ARE FINALLY CATCHING UP

ARIAH in the HVAC&RNews have highlighted the end of the grace period

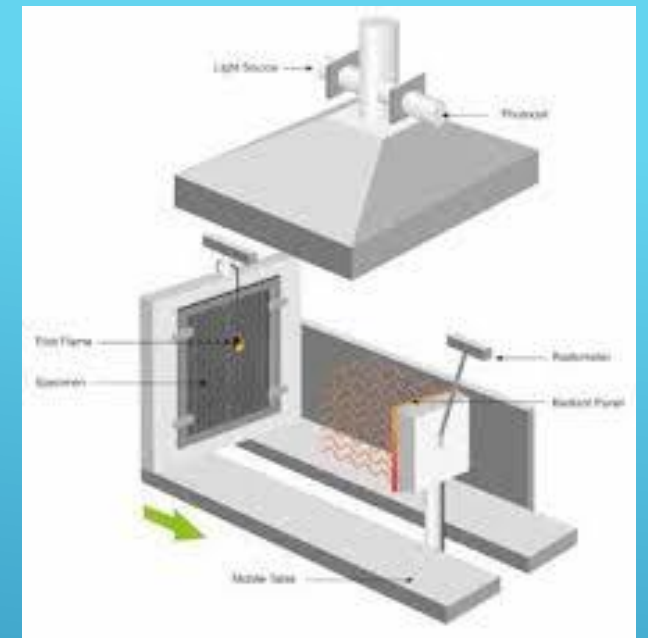
This means that these Group 4 performing products cannot be used exposed

BUT

Builders and Fire Engineers now state these same products can be used without any problems in concealed spaces – above suspended ceilings, citing NCC requirement for AS 1530.3 testing.

Our next problem – AS 1530.3 is way beyond its use-by date

Same problem with foil facing – reflecting radiant heat and shielding pilot flame from released volatiles – and if thermoplastic, melts and falls to the floor!



# WORD OF CAUTION

With all fire testing – **the devil is in the detail**

Cone Calorimeter – whole laminate vs individual components, optional retainer frame, small scale, limited correlations -

AS ISO 9705 – fixing and joint details

- Polystyrene Insulated metal panels – same core and steel facings

- Group Number can range from 1 to 3

- Difference in use of steel angles vs aluminium, steel pop rivets vs aluminium and panel joint stitching with rivets. What is reality vs testing?

AS 1530.3 – Same issue with laminates, foil facers, thermoplastics

ACP's – the panel wars

AS 5113 and BS 8414 – huge variance in installation methods, insulation type vs no insulation, provision of cavity barriers, panel edge detail and sealing, etc.



THANK YOU

