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30 July 2012

Our Ref: FCO-2618/4178

The Insulation Contractor's Association Qld Inc.
P O Box 8258
WOOLOONGABBA QLD 4102

Attention: Mr Bryan Rhodes
Representative

PIPE PENETRATION SYSTEMS
Assessment No. FCO-2618
Your email dated 27 June.

INTRODUCTION

We have re-examined the information referenced by you on the likely performance of your penetration systems. The information included:-

- test certificate number 57-97 from CSR Building Materials Research Centre, dated 13 October 1997;
- drawings numbered T.I.C.A.-1, T.I.C.A.-2 and T.I.C.A.-3, undated by the Thermal Insulation Contractors Association; and
- CSIRO Letter of Assessment numbered FCO-1449, dated 24 September 2003, issued to Thermal Insulation Contractors Association.

We have retained these documents.

You have proposed penetration systems for the protection of steel and copper pipes up to 200 mm diameter through wall and floor systems.

ANALYSIS

As reported in test certificate numbered 57-97, on 9 October 1997 CSR Building Materials Research Centre (a Registered Testing Authority, as defined in the Building Code of Australia (BCA) 1996), conducted a full-scale fire-resistance test on pipe penetration through a 110 mm thick concrete slab. The specimen comprised a 100 mm diameter x 1.6 mm thick copper pipe penetrating a 223 mm diameter hole in the concrete slab. The pipe was insulated with Bradford Insulation Fibretex-650 Rockwool Sectional pipe insulation with a thickness of 50 mm which protruded 50 mm into the furnace and 215 mm beyond the concrete slab on the unexposed side. Bradford Insulation Polystyrene, with a wall thickness of 50 mm, protected the remainder of the pipe. Both the Rockwool and the Polystyrene were covered with Bradford Insulation 750 Thermofoil. The gap between the insulation and the concrete was filled with Fyrguard Grafitex to a depth of 55 mm from the top face of the slab. A fillet of CSR Mastic was applied over the Grafitex. The system as tested achieved fire-resistance levels (FRL) of -/120/120.

The proposal is to install the same system to a horizontal pipe penetration through a masonry wall and a steel-stud or timber-stud plasterboard wall systems. It is not considered that the change in orientation from vertical to horizontal would significantly alter the performance of the penetration. The increased size of the pipes will increase the exposed area to mass ratio resulting in a slightly higher temperature on the pipes but increasing the length of the protection should counterbalance this affect. As the direction of fire attack is unknown for penetration systems in walls, the protection must be extended on both sides of the wall.

CONCLUSION/ASSESSMENT

From the analysis above and if subjected to the test conditions of AS 1530.4-1990, it is the opinion of this Division that the ***wall penetration system*** detailed in drawing numbered T.I.C.A.-2 and T.I.C.A.-3 comprising steel or copper pipe up to 200-mm diameter, would be capable of achieving a fire-resistance level of:-

- -/120/120, provided that for wall systems the Fibretex-650 with 750 sisalation extends 250 mm from the face of the wall; or
- -/120/0, provided that for wall systems the Fibretex-650 with 750 sisalation extends a minimum of 74 mm from the face of the wall.

From the analysis above and if subjected to the test conditions of AS 1530.4-1990, it is the opinion of this Division that the ***floor penetration system*** detailed in drawing numbered T.I.C.A.-1 comprising steel or copper pipe up to 200-mm diameter, would be capable of achieving a fire-resistance level of:-

- -/120/120, provided that for a floor system the Fibretex-650 with 750 sisalation extends 250 mm from the top surface of the floor.

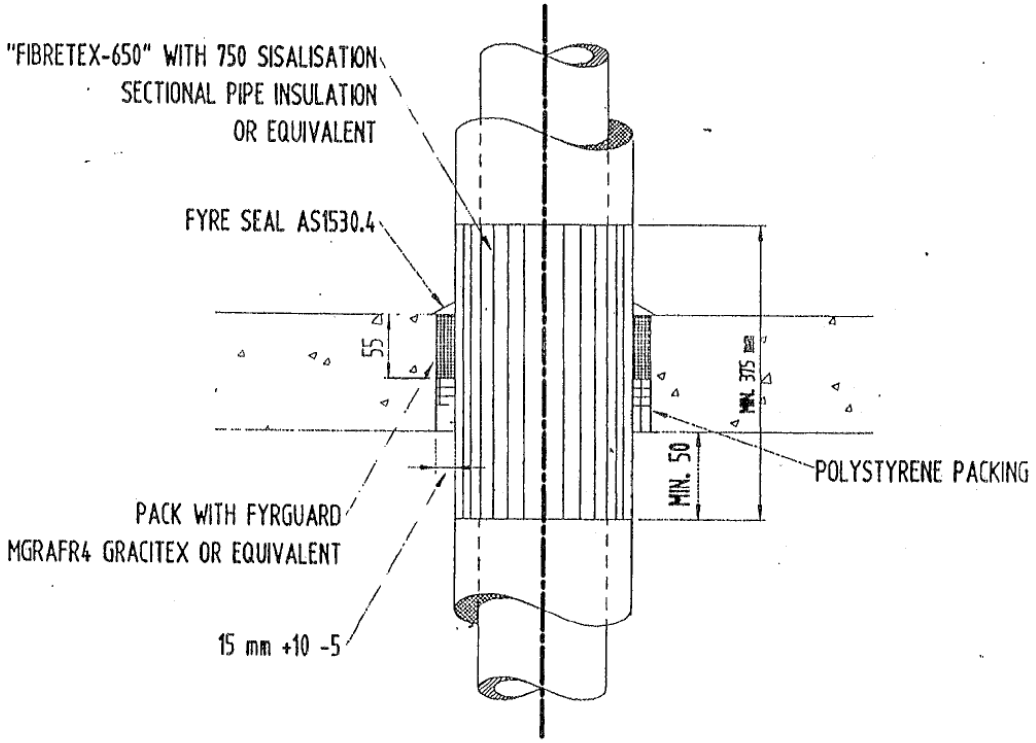
This assessment does not comply with AS 4072.1 in that the systems have not been verified by full-scale testing in the proposed orientation or pipe diameter.

TERM OF VALIDITY

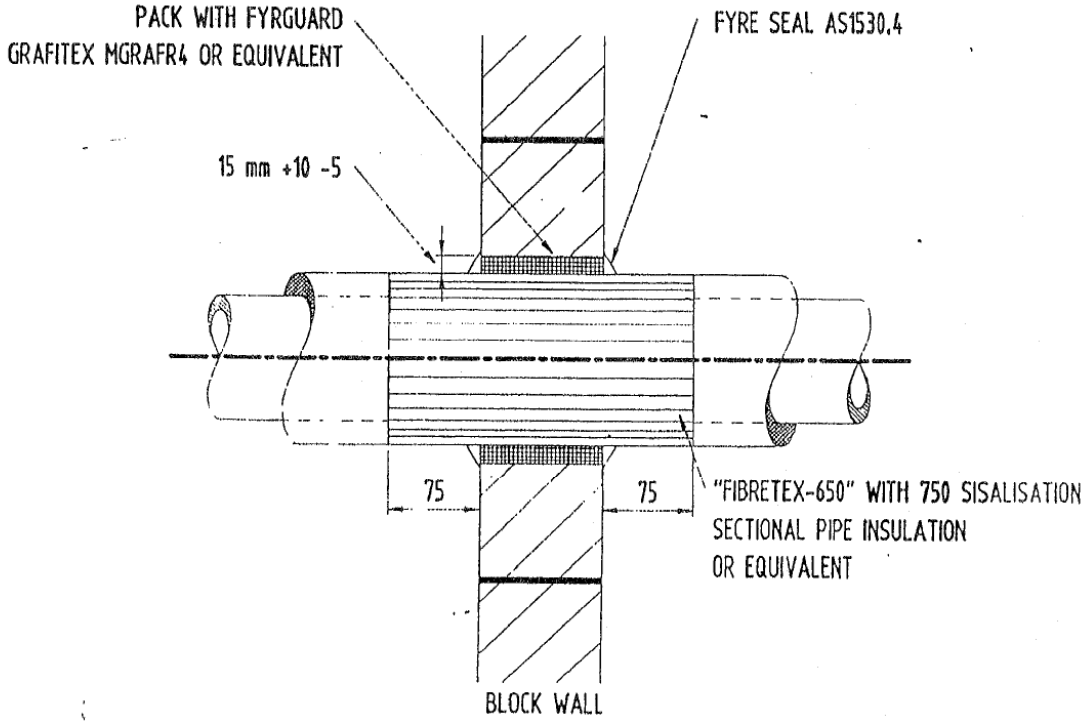
This assessment report will lapse on 31 July 2017. Should you wish us to re-examine this report with a view to the possible extension of its term of validity, would you please apply to us three to four months before the date of expiry. This Division reserves the right at any time to amend or withdraw this assessment in the light of new knowledge.

Yours sincerely

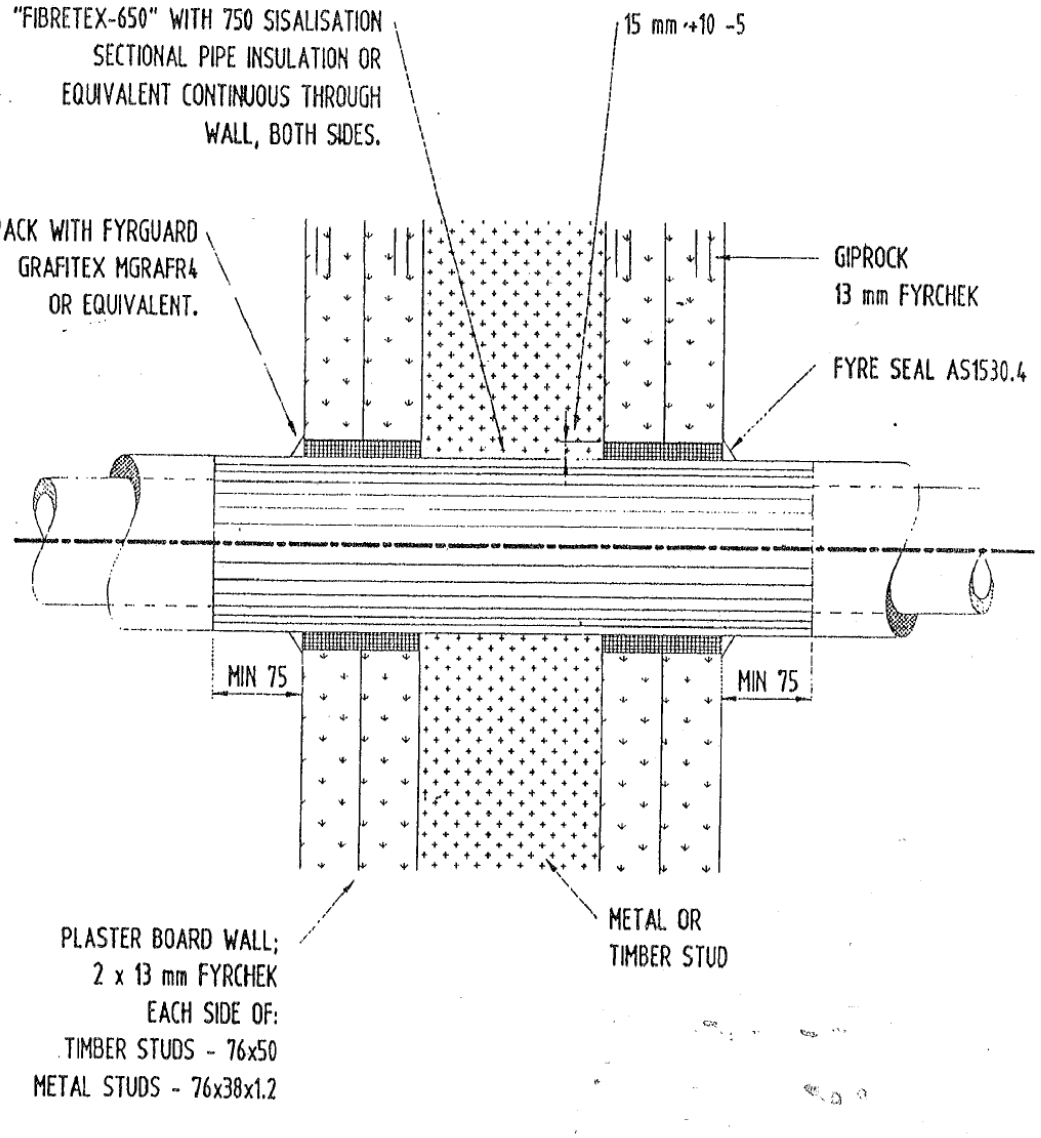
Mario Lara
Fire Testing and Assessments Officer



J. K. DRAWN	K. H. DRAFTING CHECK	CHILLED WATER FLOOR FIRE RATED INSULATION PENETRATION	T.I.C.A. THERMAL INSULATION CONTRACTORS ASSOCIATION
	G. H. DESIGN VERIFICATION		
AUTHORISED FOR ISSUE	DATE		DRAWING NUMBER T.I.C.A.-1
SCALE N.T.S.	AT A4 SIZE		



DRAWN: J. K.	DRAFTING CHECK: K. H.	CHILLED WATER BLOCK WALL FIRE RATED INSULATION PENETRATION	T.I.C.A. THERMAL INSULATION CONTRACTORS ASSOCIATION
DESIGN	DESIGN VERIFICATION: G. H.		
AUTHORISED FOR ISSUE	DATE		
SCALE: N.T.S.	AT: A4 SIZE		DRAWING NUMBER: T.I.C.A.-2 ISSUE



J. K. DRAWN	K. H. DRAFTING CHECK	CHILLED WATER PLASTER BOARD WALL - FIRE RATED INSULATION PENETRATION	T.I.C.A. THERMAL INSULATION CONTRACTORS ASSOCIATION
DESIGN	G. H. DESIGN VERIFICATION		
AUTHORISED FOR ISSUE	DATE		
SCALE N.T.S.	AT A4 SIZE		DRAWING NUMBER T.I.C.A.-3