

Hilti CP611A Intumescent Mastic Submission Folder

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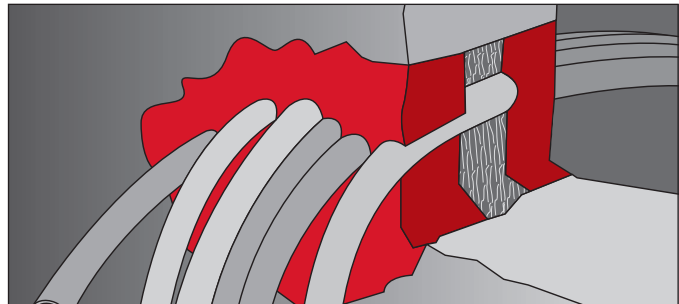
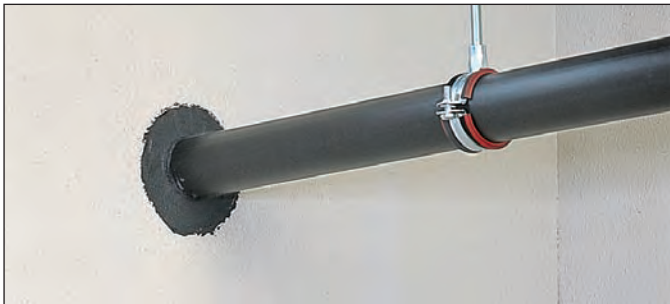
Customer Hotline

Hong Kong 8228 8118

Macau (Toll free) 00800- 8228 8118

Intumescent firestop mastic CP 611A

A graphite based intumescent firestop sealant that will close combustible pipes and cables



Applications

- Plastic pipe penetration
- Cable bundle penetration
- Cable tray penetration (together with CP 636 firestop mortar)
- Sealing plastic pipes up to 40 mm (240 mins) & 50 mm (120 mins)

Product Features

- Expands in fire, protecting pipe and cable penetrations
- Halogen and solvent free
- Odourless

Advantages

- Easy to work with
- Smoke, gas and water tight
- Paintable
- Particularly suitable for laying new cables
- Expansion pressure up to 7 Bar

Consumption Guide

Cartridge size = 310 ml (CP 611A)

Sealing volume in wall application
(installation on both sides)

$$V_s = \frac{\pi}{4} \times (a^2 - c^2) \times 2b$$

Sealing volume in floor application
(installation on one side only)

$$V_s = \frac{\pi}{4} \times (a^2 - c^2) \times b$$

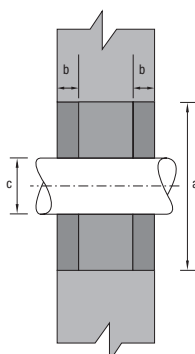
a = hole diameter in cm

b = installation depth in cm (see approvals)

c = outside diameter of pipe or bunched cable diameter in cm

No. of cartridges needed,

$$n = \frac{V_s}{310 \text{ (ml)}}$$



Technical data (at 23°C and 50% relative air humidity)

CP 611A	
Base materials	Concrete, masonry and drywall
For use in	Walls and floors
Fire rating	Up to 240 mins
Colour	Grey
Storage temperature	5°C to 25°C
Application temperature	-5°C to 40°C
Temperature resistance	-40°C to 100°C
Skin-forming time	Approx. 15 min.
Curing rate	5 mm in 3 days
Intumescent activation	From 140°C to 180°C
Movement acceptance	10%
Material class as per DIN 4102, P.1	B2
Shelf-life after production	12 months (at 20°C in a dry place)



Smoke



Water Tight



Acoustic



Low VOC

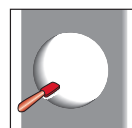


(Macau Local FSD Approved)

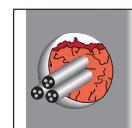


Contributed to LEED IEQ Credit 4.1
Low-Emitting Materials-Adhesives & Sealants

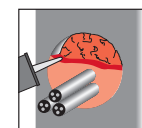
Application Procedure



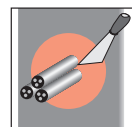
1. Clean opening



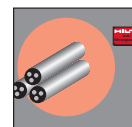
2. Depending on required integrity, pack in mineral wool or foam



3. Apply CP 611A



4. Smooth CP 611A



5. Fasten installation plate in place (if required)



310ml cartridge

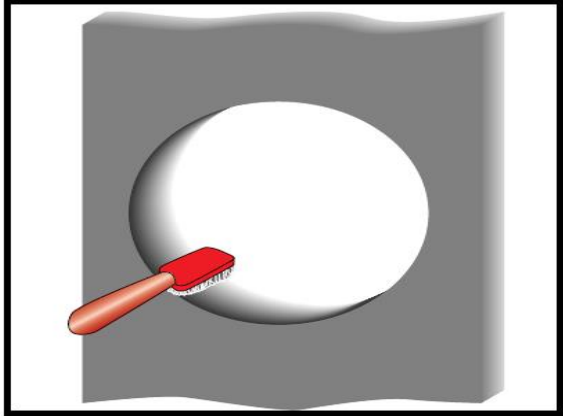
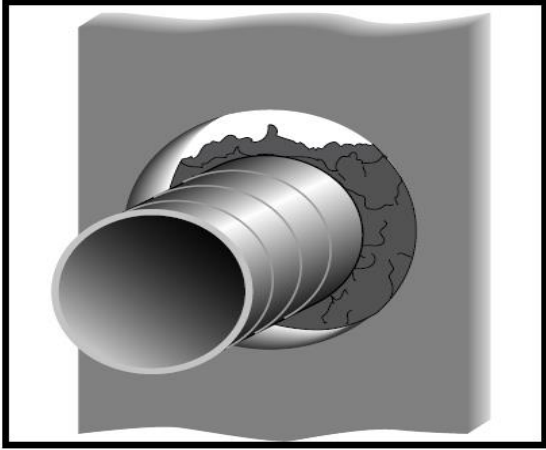
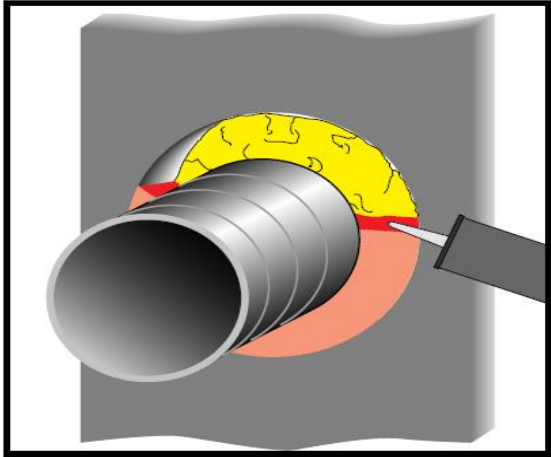


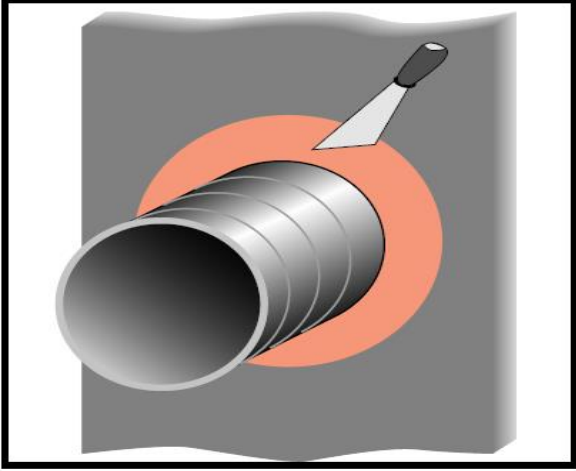
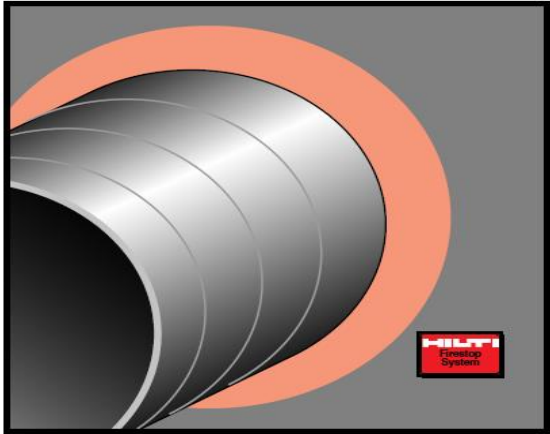
CFS-DISP

Ordering

Order designation	Packaging content (pcs)	Item No.
Intumescent firestop mastic CP 611A	20 (310ml)	00220351
Dispenser CFS-DISP	1	02005843

Subject: Method Statement of CP 611A for Penetration Seal.
Material: CP 611A firestop intumescent sealant
Accessory: Hilti Dispenser CFS-DISP or equivalent.

Setting Operation		
1	Clean the opening. Surfaces to which CP 611A will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.	
2	Insert the required fill of mineral wool and backer.	
3	Apply firestop CP 611A over backer.	

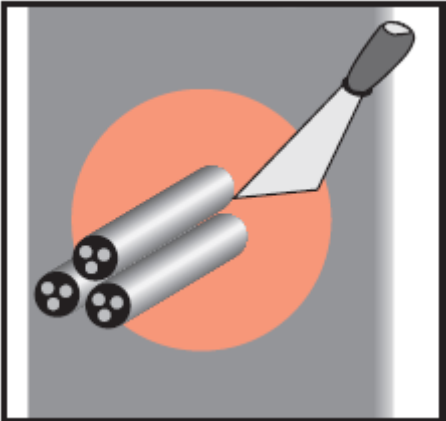
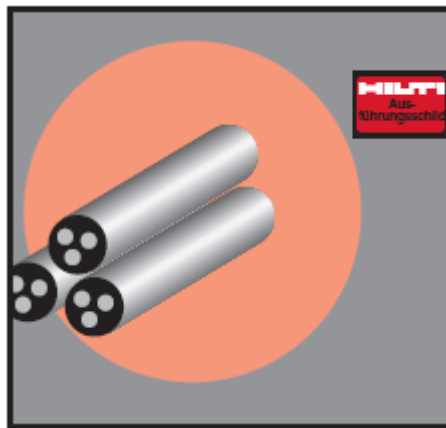
4	<p>Smooth the firestop sealant with a trowel before the skin forms. Once cured, CP 611A can only be removed mechanically.</p>	 A 3D cutaway diagram of a pipe penetration through a wall. The pipe is surrounded by a thick, orange-colored firestop sealant. A trowel is shown smoothing the sealant around the pipe. The wall is grey.
5	<p>For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the Identification plate and fasten it in a visible position next to the seal.</p>	 A 3D cutaway diagram of a pipe penetration through a wall, similar to the first diagram. The pipe is surrounded by a thick, orange-colored firestop sealant. A small, rectangular identification plate with the HILTI logo is attached to the wall next to the sealant. The wall is grey.

Safety precautions:

- Never use in areas immersed in water
- Not to be painted
- Store only in the original packaging in a location protected from moisture at a temperature of 5°C to 25°C
- Observe expiration date on package.

Subject: Method Statement of CP 611A for Joint Seal.
Material: CP 611A firestop intumescent sealant
Accessory: Hilti Dispenser CFS-DISP or equivalent.

Setting Operation		
1	Clean the opening. Surfaces to which CP 611A will be applied should be cleaned of loose debris, dirt, oil, wax and grease. The surface should be moisture and frost free.	
2	Insert the required fill of mineral wool and backer.	
3	Apply firestop CP 611A over backer.	

4	Smooth the firestop sealant with a trowel before the skin forms. Once cured, CP 611A can only be removed mechanically.	 An illustration showing a trowel being used to smooth a firestop sealant on a wall. The sealant is applied in a circular pattern, and the trowel is shown in the process of smoothing it. The background is a light gray wall.
5	For maintenance reasons, a penetration seal could be permanently marked with an identification plate. In such a case, mark the Identification plate and fasten it in a visible position next to the seal.	 An illustration showing a penetration seal on a wall. The seal is applied in a circular pattern. A small identification plate with the HILTI logo and the text 'Ausführungsschicht' is fastened to the wall next to the seal. The background is a light gray wall.

Safety precautions:

- Never use in areas immersed in water
- Not to be painted
- Store only in the original packaging in a location protected from moisture at a temperature of 5°C to 25°C
- Observe expiration date on package.

TEST REPORT

FIRE RESISTANCE TEST USING
THE GENERAL PRINCIPLES OF
BS 476: PART 20: 1987 TO
EVALUATE FOUR DIFFERENT EXAMPLES OF
HORIZONTAL PENETRATION SEALING
SYSTEM WITHIN A VERMICULITE
CEMENT FLOOR

THE PROFESSIONALS IN FIRE SAFETY •

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THE PROFESSIONALS IN FIRE SAFETY •



TEST REPORT

TEST SPONSOR: HILTI (GB) LIMITED, 1 Trafford Wharf Road, Manchester, M17 1BY.

TEST SUMMARY: A fire resistance test has been conducted to assess the ability of four different examples of a proprietary penetration sealing system to reinstate the integrity and insulation performance (as defined in BS 476: Part 22: 1987) of a vermiculite cement floor at positions where it had been provided with apertures to allow for its penetration by various electrical service items. Since no standardised test yet exists for this purpose the test utilised the general principles of BS 476: Part 20: 1987.

The section of vermiculite cement floor was provided with four circular apertures, each penetrated by various electrical service items. Each aperture was sealed with a 40 mm thick layer of 'Hilti CP 611' (new formulation) mastic. The seals were installed flush with the soffit of the floor slab.

An additional specimen of penetration sealing system was included in the test, this is the subject of a separate report, WARRES 57312/B.

The four specimens were individually assessed against the performance criteria for integrity and insulation (maximum temperature rise) specified in BS 476: Part 20: 1987.

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Test Summary
(Continued)

The results obtained were as follows:

Specimen Ref.	Aperture diameter mm	Penetrating services	Integrity mins	Insulation
H1	120	3 No two core armoured cables each 23 mm diameter	240	75
H2	120	1 No four core armoured cable 32 mm diameter	240	52
H3	130	1 No four core armoured cable 40 mm diameter	240	60
H4	90	10 No sixteen core telecommunication cables each 11 mm diameter	240	53

The test was discontinued after 240 minutes.

TEST DATE: 28th October 1992

REPORT ISSUED: 13th November 1992

LG(1147)

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PURPOSE OF THE INVESTIGATION

- 1.1 To investigate the ability of various applications of a proprietary penetration sealing system to reinstate the fire resistance performance in terms of integrity and insulation (as defined in BS 476: Part 20: 1987) of a vermiculite cement floor at positions where it had been provided with apertures to allow for its penetration by various electrical service items. The test utilised the general principles and performance criteria of BS 476: Part 20: 1987, 'Methods for determination of the fire resistance of elements of construction (general principles)'.

INTRODUCTION

- 2.1 At the present time there is no British Standard test procedure applicable to the evaluation of a method or a system designed to preserve the fire resistance of a wall or a floor where it has been penetrated by an electrical service item.
- 2.2 Since the fire resistance of a wall or a floor is determined by test, as given in BS 476: Part 20: 1987, it would seem appropriate to utilise that document as a basis for a test for evaluating the performance of penetration sealing systems. Additional guidelines are given in the latest draft document referenced CEN/TC127 Adhoc 6 N152, produced by the European Committee for Standardisation (CEN) relating to the fire resistance testing of penetration sealing systems.
- 2.3 This report covers a test, utilising the principles of both of the above documents, which was conducted to evaluate the ability of various proprietary penetration sealing systems to reinstate the fire resistance performance of a vermiculite cement floor at a position where it has been provided with an aperture to allow for its penetration by an electrical service item. Four different specimens were included in the test.
- 2.4 In accordance with BS 476: Part 20: 1987, an integrity failure is deemed to occur when cracks or other openings exist in the specimen through which flame or hot gases can pass which would lead to the ignition or glowing of a cotton pad or when flaming occurs on the unexposed face for a duration greater than 10 seconds. An insulation failure is deemed to occur when the mean temperature of the unexposed surface of the specimen increases by more than 140°C above the initial temperature, or the temperature of the unexposed surface increases at any point by more than 180°C above the initial temperature. Due to the relatively small area of the separating element occupied by an individual specimen, only the maximum temperature insulation criterion was utilised during the test.
- 2.5 Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group has identified a number of such areas and has agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Group. Where such Resolutions are applicable to this test they have been followed.
- 2.5 The investigation was conducted on the 1st October 1992, at the request of Hilti Limited, the sponsor of the test.
- 2.6 The test was witnessed by Mr. R. Laybourn, representing the sponsor.

TEST SPECIMEN CONSTRUCTION

- 3.1 The drawings illustrated in Figures 1 and 2 show the dimensions and details of the test construction and the thermocouple positions. Appendix 1 gives a description of the test construction.
- 3.2 The information given in the drawings and Appendix 1 is based upon a detailed survey of the test specimens and information supplied by the sponsor.

- 3.3 The floor construction containing the apertures was supplied by Warrington Fire Research Centre. The electrical services and penetration sealing systems were provided and installed by Hilti (GB) Limited on the 9th September 1992. Warrington Fire Research Centre was not involved in any sampling or selection procedure.

INSTRUMENTATION

- 4.1 The instrumentation provided was in accordance with BS 476: Part 20: 1987, where applicable.
- 4.2 Thermocouples were provided to monitor the temperature of the furnace atmosphere and the specimens as follows:
- 4.2.1 At four positions within the furnace evenly distributed over a plane 100 mm from the soffit of the floor to give a mean furnace temperature.
- 4.2.2 At various positions on the unexposed surface of each of the specimens and the associated test construction, as specified in the CEN document.
- 4.2.3 The locations and reference numbers of the thermocouples are shown in Figures 1 and 2. All unexposed surface thermocouples were used to assess the ability of the specimens to satisfy the maximum temperature criterion.
- 4.3 A roving thermocouple was available to measure temperatures on the unexposed surface at positions which might appear to be hotter than temperatures indicated by the fixed thermocouples.
- 4.4 Pressure tappings were provided within the furnace to monitor the furnace pressure.
- 4.5 Cotton pads and gap gauges were available to evaluate the impermeability of the test specimens to hot gases.

TEST PROCEDURE

- 5.1 The furnace was controlled so that its mean temperature complied with the requirements of BS 476: Part 20: 1987, paragraph 3.1. After the first five minutes of testing the furnace was controlled to maintain a slightly positive pressure, relative to the pressure of the laboratory. The pressure was measured and controlled such that at a position level with the soffit of the floor slab the differential was between 18 Pa and 20 Pa.
- 5.2 Throughout the test the outputs of the transducers provided to monitor the furnace and the specimens were recorded at one minute intervals.
- 5.3 Observations were made on the general behaviour of the test specimens during the test. The roving thermocouple and cotton pads were used if considered appropriate and any flaming on the unexposed surface of the specimens was recorded.

TEST DATA AND INFORMATION

- 6.1 The mean furnace temperature is compared with the specified temperature/time relationship in the graph in Figure 3 and also in Table 1.
- 6.2 The temperatures recorded by the thermocouples fixed to the unexposed surface of the specimens are given in Tables 2 to 5.
- 6.3 Observations made on the general behaviour of the specimens are detailed in Appendix 2.

- 6.4 Photographs taken of the specimens before and during the test are listed in Appendix 3 and are included as Plates 1 to 10.
- 6.5 The ambient air temperature in the vicinity of the test constructions was 19°C at the start of the test, with a maximum variation of +1°C during the test.

EVALUATION AGAINST THE PERFORMANCE CRITERIA

- 7.1 The performance of each specimen was judged against the following criteria:
 - 7.1.1 **Integrity** - BS 476: Part 20: 1987 requires that there is no collapse of the specimen, no flaming on the unexposed surface and no loss of impermeability. These requirements were satisfied for each specimen for the times shown in 8.2.
 - 7.1.2 **Insulation** - The highest mean and maximum individual temperature rises allowable by BS 476: Part 20: 1987 are 140°C and 180°C respectively. Since each penetration occupies only a small area of the separating element, only the maximum temperature criterion was used as a basis for assessment. This requirement was satisfied for each specimen for the times shown in 8.2.

CONCLUSIONS

- 8.1 A fire resistance test which utilised the general principles BS 476: Part 20: 1987 has been conducted to assess the ability of several examples of a proprietary penetration sealing system to reinstate the integrity and insulation performance (as specified in BS 476: Part 20: 1987) of a vermiculite cement floor at positions where it had been provided with apertures to allow for its penetration by various electrical service items.
- 8.2 Four specimens were included in the test. The specimens were individually assessed against the criteria for integrity and insulation (maximum temperature rise) specified in BS 476: Part 20: 1987. The results obtained were as follows:

Specimen Ref.	Aperture diameter mm	Penetrating services	Integrity mins	Insulation
H1	120	3 No two core armoured cables each 23 mm diameter	240	75
H2	120	1 No four core armoured cable 32 mm diameter	240	52
H3	130	1 No four core armoured cable 40 mm diameter	240	60
H4	90	10 No sixteen core telecommunication cables each 11 mm diameter	240	53

The test was discontinued after 240 minutes.

LIMITATIONS


- 9.1 The results relate only to the behaviour of the specimens of the penetration sealing systems under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential fire performance of the systems in use, nor do they reflect the actual behaviour in fires.
- 9.2 This report covers a test which was conducted to a procedure which is not the subject of any British Standard specification, but the test utilised the general principles of fire resistance testing given in BS 476: Part 20-23. Since fire tests are the subject of a continuing Standardisation process, and because existing standards are the subject of review and possible amendment and new interpretations, it is recommended that the report be referred back to the test laboratory after a period of two years to ensure that the methodology adopted and the results obtained remain valid in the light of the situation prevailing at that time.

Testing Officer



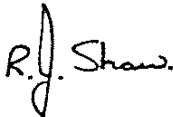
D. WILLIAMS
Technical Officer
Structural Fire Testing

Responsible Officer



D. BROWN
Manager
Structural Fire Testing

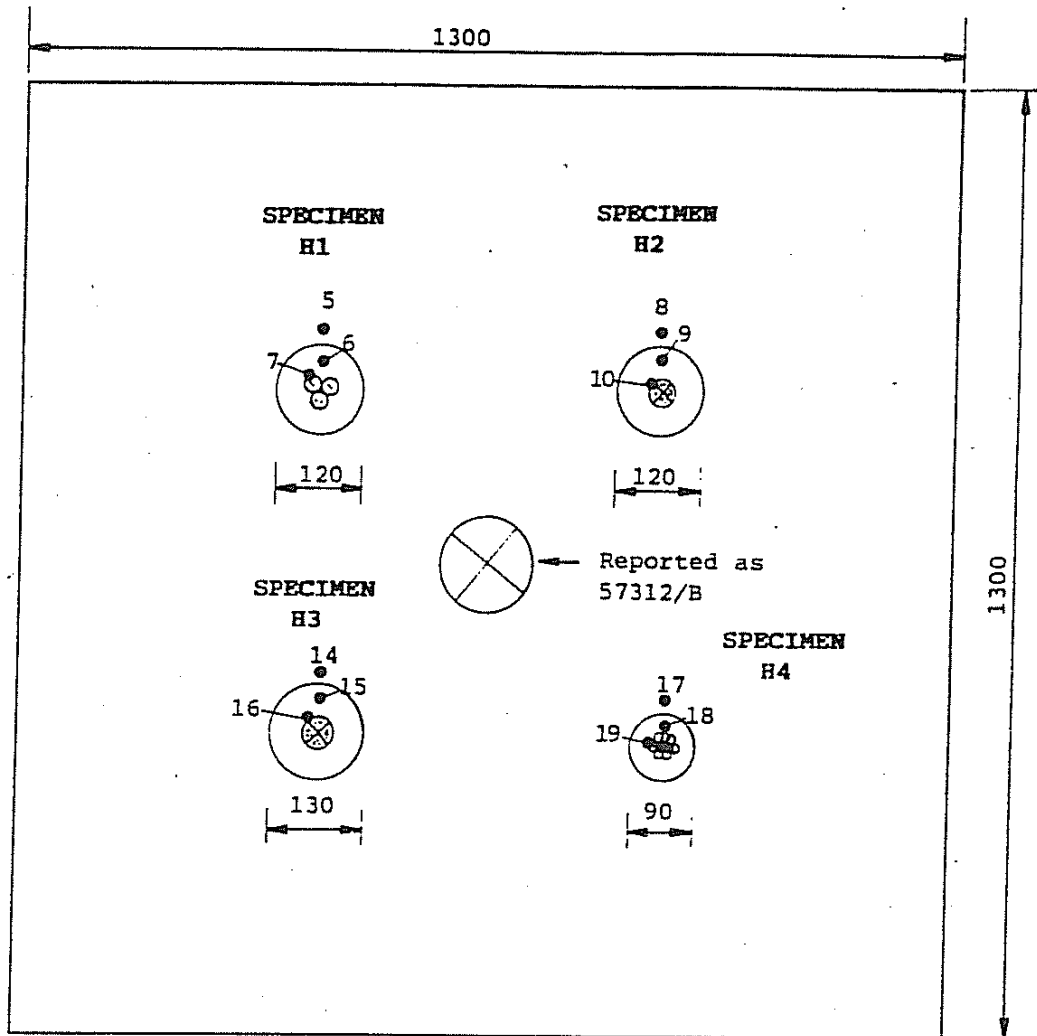
Approved



R. J. SHAW
Director
For and on behalf of:
WARRINGTON FIRE RESEARCH CENTRE

13th November 1992

LG(1147)



● Unexposed surface thermocouple positions

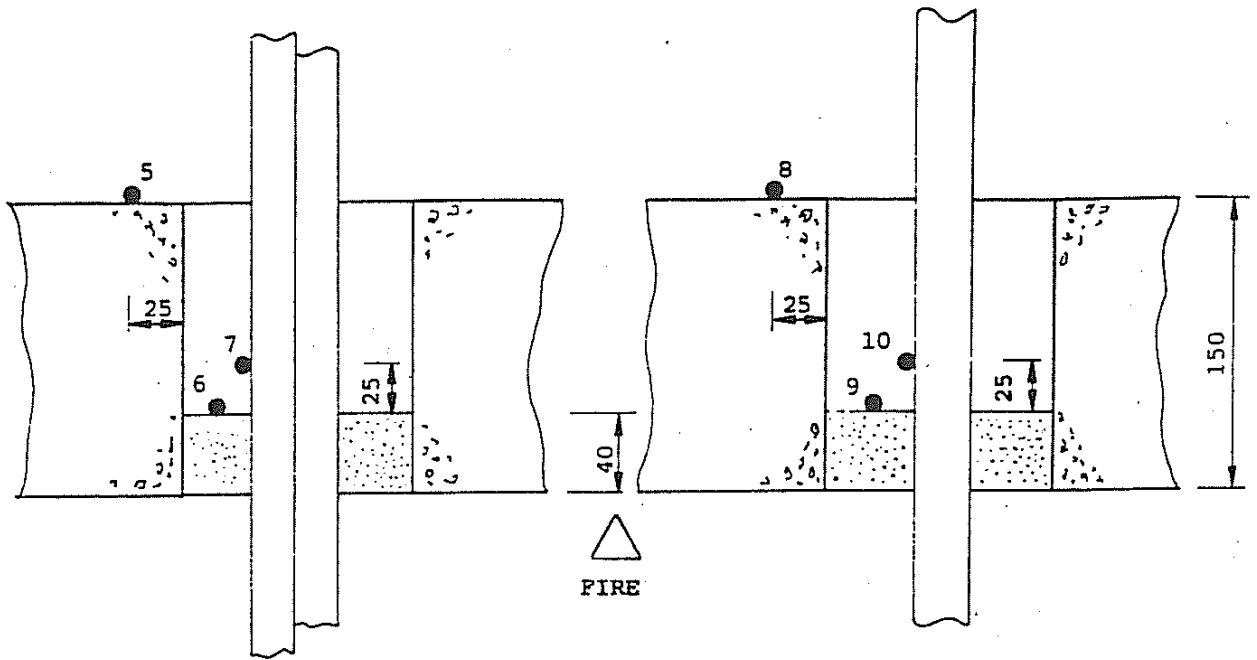
PLAN VIEW OF TEST CONSTRUCTION

All dimensions are in mm unless noted otherwise

FIGURE 1

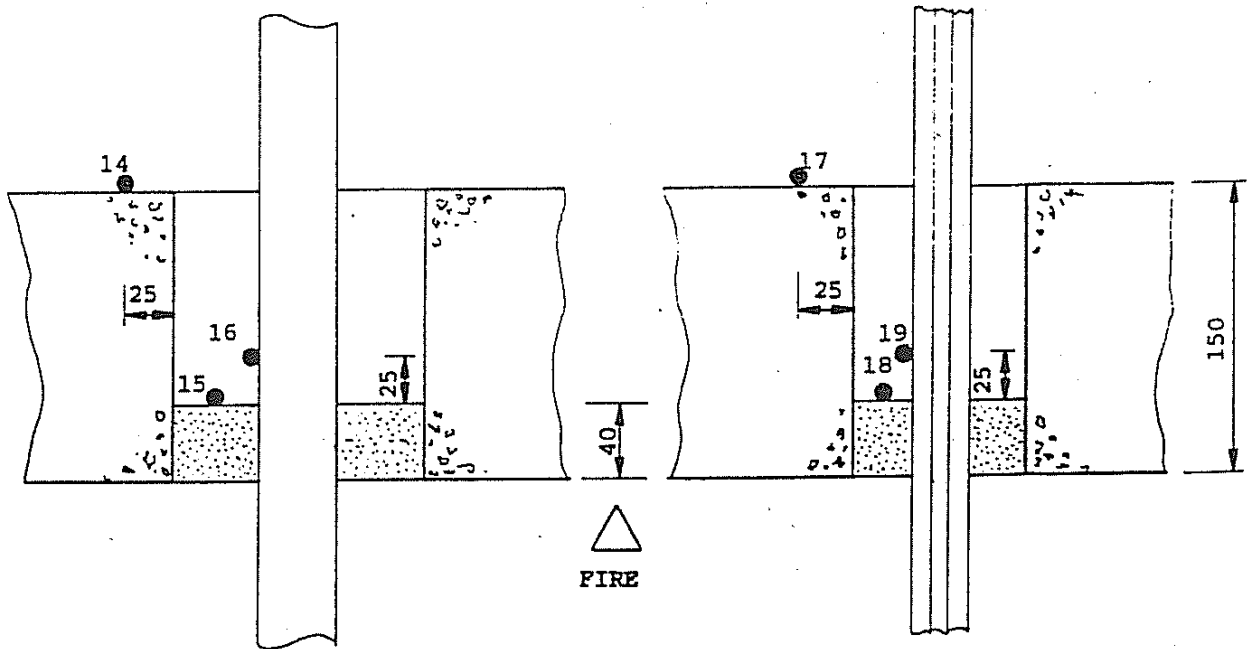
Specimen H1

Specimen H2



Specimen H3

Specimen H4



VERTICAL CROSS SECTION OF EACH SPECIMEN SEAL

All dimensions are in mm unless noted otherwise

● Unexposed surface thermocouple position

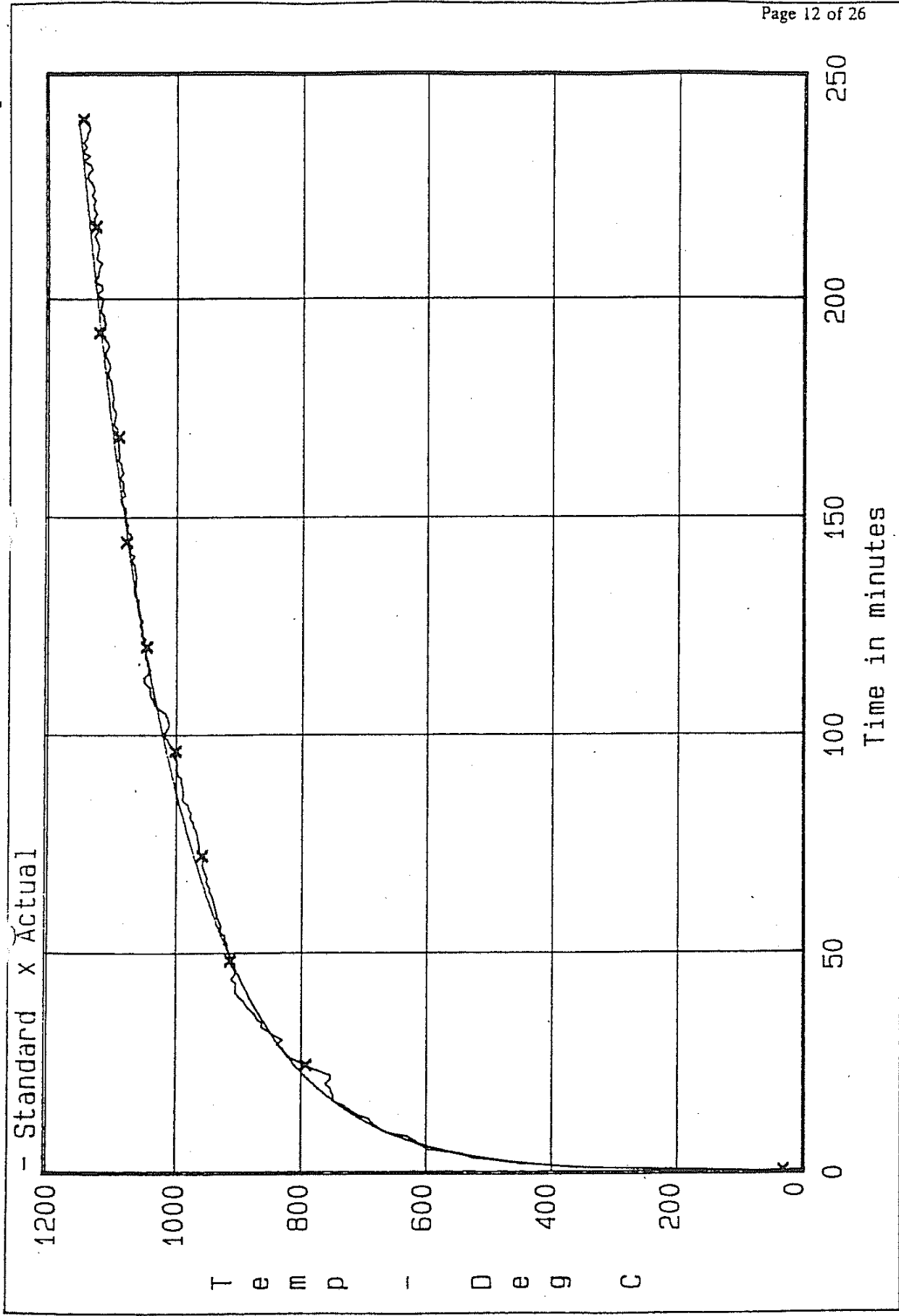


FIGURE 3

TABLE 1

Time	STANDARD FURNACE TEMP.	ACTUAL FURNACE TEMP.	AREA UNDER STANDARD CURVE	AREA UNDER ACTUAL CURVE	PERCENT DIFF.	PERCENT TOLERANCE
Mins	Deg C	Deg C	Deg C.min	Deg C.min		+ or -
0	20	29				
1	349	366				
2	445	441				
3	502	523				
4	544	540				
5	576	596				
6	603	607				
7	626	617				
8	645	630				
9	663	663				
10	678	675	5302	5336	0.6	15
15	739	732				
20	781	760				
25	815	803				
30	842	828	15493	15233	-1.7	10
40	885	900				
50	918	915				
60	945	937				
70	968	958				
80	998	974				
90	1006	991				
100	1022	1019				
110	1036	1040				
120	1049	1045				
130	1061	1059				
140	1072	1069				
150	1082	1078				
160	1092	1081				
170	1101	1091				
180	1110	1100				
190	1118	1108				
200	1126	1114				
210	1133	1123				
220	1140	1129				
230	1146	1134				
240	1153	1145	219992	218631	-0.6	5

TABLE 2

	CHANNEL	CHANNEL	CHANNEL
: Time:	NUMBER	NUMBER	NUMBER
	5	6	7
: Mins:	Deg C	Deg C	Deg C
:	:	:	:
: 0:	19	19	19
: 5:	20	20	20
: 10:	20	20	35
: 15:	20	27	66
: 20:	20	40	73
: 25:	20	52	75
: 30:	20	64	84
: 35:	20	73	103
: 40:	20	79	125
: 45:	21	84	140
: 50:	22	87	154
: 55:	23	90	166
: 60:	25	92	174
: 65:	26	94	182
: 70:	28	97	191
: 75:	30	99	201
: 80:	31	105	210
: 85:	33	123	223
: 90:	36	146	235
: 95:	38	164	245
: 100:	40	179	246
: 105:	43	193	251
: 110:	45	207	254
: 115:	49	225	254
: 120:	51	238	258
: 125:	54	263	254
: 130:	57	289	249
: 135:	59	311	242
: 140:	62	337	233
: 145:	65	357	229
: 150:	68	375	228
: 155:	70	391	228
: 160:	73	405	231
: 165:	75	419	231
: 170:	78	432	232
: 175:	80	444	232
: 180:	83	458	233
: 185:	85	470	233
: 190:	87	483	236
: 195:	89	498	237
: 200:	90	509	240
: 205:	91	519	243
: 210:	92	527	246
: 215:	92	536	249
: 220:	93	544	252
: 225:	93	552	255
: 230:	93	560	258
: 235:	93	568	260
: 240:	94	576	263

TABLE 3

	CHANNEL	CHANNEL	CHANNEL
:Time:	NUMBER	NUMBER	NUMBER
	8	9	10
:Mins:	Deg C	Deg C	Deg C
: 0:	19	19	19
: 5:	20	20	20
: 10:	20	21	34
: 15:	20	32	54
: 20:	20	47	80
: 25:	20	63	109
: 30:	21	74	132
: 35:	21	83	158
: 40:	22	89	177
: 45:	23	93	189
: 50:	25	97	197
: 52:	25	98	199
: 55:	26	101	206
: 60:	28	104	218
: 65:	30	111	232
: 70:	31	118	240
: 75:	33	127	246
: 80:	35	141	250
: 85:	38	153	248
: 90:	40	163	243
: 95:	43	170	237
: 100:	46	176	234
: 105:	50	179	239
: 110:	53	185	240
: 115:	56	191	235
: 120:	60	197	239
: 125:	64	203	244
: 130:	67	206	246
: 135:	71	208	255
: 140:	74	211	267
: 145:	77	217	269
: 150:	79	222	259
: 155:	81	227	250
: 160:	84	233	245
: 165:	86	239	244
: 170:	87	246	244
: 175:	89	253	243
: 180:	90	253	239
: 185:	92	257	235
: 190:	92	263	227
: 195:	93	271	227
: 200:	93	279	213
: 205:	94	287	215
: 210:	95	296	212
: 215:	95	304	201
: 220:	95	311	195
: 225:	95	319	179
: 230:	94	324	178
: 235:	95	331	174
: 240:	95	338	173

TABLE 4

	CHANNEL	CHANNEL	CHANNEL
:Time:	NUMBER	NUMBER	NUMBER
:Mins:	Deg C	Deg C	Deg C
: 0:	19	19	19
: 5:	20	20	21
: 10:	20	39	35
: 15:	20	66	53
: 20:	21	82	74
: 25:	21	93	96
: 30:	23	92	119
: 35:	23	91	137
: 40:	23	94	155
: 45:	24	93	168
: 50:	26	93	180
: 55:	28	103	189
: 60:	29	141	200
: 65:	31	184	206
: 70:	33	197	222
: 75:	35	211	232
: 80:	37	222	236
: 85:	40	234	236
: 90:	42	224	230
: 95:	45	173	216
: 100:	48	170	200
: 105:	51	171	184
: 110:	53	175	149
: 115:	56	180	124
: 120:	59	185	111
: 125:	62	189	106
: 130:	64	193	105
: 135:	67	197	103
: 140:	71	201	101
: 145:	74	206	102
: 150:	77	212	103
: 155:	80	217	103
: 160:	82	223	102
: 165:	85	229	102
: 170:	87	234	101
: 175:	88	241	101
: 180:	90	246	100
: 185:	91	252	98
: 190:	92	257	96
: 195:	92	262	93
: 200:	92	265	91
: 205:	92	271	92
: 210:	93	276	94
: 215:	93	281	92
: 220:	92	286	93
: 225:	92	291	95
: 230:	92	296	92
: 235:	92	300	93
: 240:	92	306	90

TABLE 5

	CHANNEL	CHANNEL	CHANNEL
:Time:	NUMBER	NUMBER	NUMBER
	17	18	19
:Mins:	Deg C	Deg C	Deg C
: 0:	19	19	19
: 5:	20	20	20
: 10:	20	21	848
: 15:	20	30	20
: 20:	20	42	276
: 25:	20	56	109
: 30:	22	69	130
: 35:	22	80	156
: 40:	22	89	173
: 45:	23	96	183
: 50:	24	109	192
: 53:	24	120	197
: 55:	25	128	210
: 60:	27	143	218
: 65:	30	161	259
: 70:	32	175	280
: 75:	35	181	269
: 80:	37	192	260
: 85:	40	206	255
: 90:	42	222	253
: 95:	45	228	242
: 100:	47	228	234
: 105:	51	225	224
: 110:	54	225	217
: 115:	58	227	211
: 120:	62	227	207
: 125:	65	230	204
: 130:	68	233	202
: 135:	72	236	200
: 140:	75	240	199
: 145:	78	245	197
: 150:	82	249	195
: 155:	85	253	193
: 160:	87	256	193
: 165:	89	259	194
: 170:	92	259	196
: 175:	93	259	198
: 180:	94	259	201
: 185:	95	259	203
: 190:	95	260	205
: 195:	95	261	208
: 200:	95	262	211
: 205:	95	264	213
: 210:	97	267	215
: 215:	96	269	217
: 220:	95	271	218
: 225:	95	274	221
: 230:	95	277	224
: 235:	95	280	226
: 240:	96	284	228

APPENDIX 1

A. DESCRIPTION OF THE SPECIMENS TESTED

1. GENERAL DESCRIPTION

1.1 The test construction consisted of a section of vermiculite cement floor which was provided with five circular apertures only four of which are the subject of this report. Each of the four apertures was penetrated by various electrical service items and was provided with a penetration seal formed from 'Hilti CP 611' (new formulation) mastic.

2. SEPARATING ELEMENT

2.1 Size

The section of floor was of overall nominal size 1300 mm square by 150 mm thick.

2.2 Material

The section of floor was formed from a steel reinforced vermiculite cement mix of nominal density 670 kg/m³.

2.3 Apertures

The section of floor contained four circular apertures, two of size 120 mm diameter, one of size 130 mm diameter and one of size 90 mm diameter.

3. PENETRATION SEALING SYSTEMS

3.1 Specimen H1

Specimen H1 comprised a circular aperture of size 120 mm diameter which was penetrated by a bundle of three electrical cables each of 2 copper core wire armoured construction with an outside diameter of 23 mm diameter and a cross sectional conductor area of 2 x 19.02 mm². The aperture between the service cables and the floor was infilled with a 40 mm thick layer of 'Hilti CP611' (new formulation) mastic installed such that it was flush with the soffit of the floor.

3.2 Specimen H2

Specimen H2 comprised a circular aperture of size 120 mm diameter which was penetrated by a single electrical service cable of four copper cored wire armoured construction with an outside diameter of 32 mm and a cross sectional conductor area of 4 x 53.09 mm². The aperture between the service cable and the floor was infilled with a 40 mm thick layer of 'Hilti CP 611' (New formulation) mastic installed such that it was flush with the soffit of the floor.

Appendix 1 (Continued)

3.3 Specimen H3

Specimen H3 comprised a circular aperture of size 130 mm diameter which was penetrated by a single electrical service cable of four copper cored, wire armoured construction with an outside diameter of 40 mm and a cross sectional conductor area of $4 \times 70.06 \text{ mm}^2$. The aperture between the service cable and the floor was infilled with a 40 mm thick layer of 'Hilti CP611' (new formulation) mastic installed such that it was flush with the soffit of the floor.

3.4 Specimen H4

Specimen H4 comprised a circular aperture of size 90 mm which was penetrated by a bundle of ten telecommunications cables each of 16 copper core construction with a cross sectional area for each cable of $16 \times 0.50 \text{ mm}^2$. The aperture between the service cables and the floor was infilled with a 40 mm thick layer of 'Hilti CP 611' (new formulation) mastic installed such that it was flush with the soffit of the floor.

4. SUPPORTS TO SERVICES

- 4.1 The table below lists the projecting length of each service item together with the support height.

Specimen Ref.	Exposed length mm	Unexposed length mm	Support Height
H1	670	755	275 and 590
H2	760	700	295 and 590
H3	1000	730	295 and 585
H4	625	765	265 and 585

B. PROPERTIES OF MATERIALS

The 'Hilti CP 611' (new formulation) mastic was a water based intumescent mastic applied from cartridges. Samples of the material were taken to determine the density and moisture content at the time of test, these were found to be 1291.7 kg/m^3 and 12.92% w/w respectively.

APPENDIX 2

OBSERVATIONS MADE BY TESTING OFFICER

U - Unexposed surface : E - Exposed surface

Time			
mins	secs		
00	00		Test commences
02	00	E	The pvc cable sheathing has distorted and charred.
03	00	E	The pvc cable sheathing has ignited within the furnace chamber.
04	00	U	A slight smoke release issues from the seals of specimens H1, H3 and H4.
17	00	U	The smoke release mentioned at 04 minutes continues.
45	00	E	The face of the seals is now covered by a white powdery char layer.
52	00	U	Thermocouple No 11 affixed to the cable penetrating specimen H2 records a temperature rise in excess of 180°C. <u>Insulation failure occurs.</u>
53	00	U	Thermocouple No 19 affixed to the cable penetrating specimen H4 records a temperature rise in excess of 180°C. <u>Insulation failure occurs.</u>
60	00	U	All specimens continue to satisfy the integrity performance criterion. Specimens H1 and H3 continue to satisfy the insulation performance criterion. Thermocouple No 16 affixed to the penetrating cable of specimen H3 records a temperature rise in excess of 180°C. <u>Insulation failure occurs.</u>
71	00	U	The pvc cable sheathing has softened and distorted on all cables at the point of exit of the cable from the seal.
75	00	U	Thermocouple No 7 affixed to the cable penetrating specimen H1 records a temperature rise in excess of 180°C. <u>Insulation failure occurs.</u>
86	00	U	The smoke release mentioned at 17 minutes continues.
90	00	U	Thermocouple No 16 affixed to the cable penetrating specimen H3 becomes partly displaced due to softening and movement of the pvc cable insulation.
120	00	U	All specimens continue to satisfy the integrity performance criterion.
150	00	U&E	There are no further significant visible changes to any specimen.
180	00	U	All specimens continue to satisfy the integrity performance criterion.
210	00	U	The smoke release mentioned at 86 minutes continues. There is a visible expansion of the intumescent within the apertures.
240	00		All specimens continue to satisfy the integrity performance criterion.

The test is discontinued at the request of the sponsor.

APPENDIX 3**PHOTOGRAPHS**

- Plate 1 - The exposed surface of specimen H1 prior to test.
- Plate 2 - The exposed surface of specimen H2 prior to test.
- Plate 3 - The exposed surface of specimen H3 prior to test.
- Plate 4 - The exposed surface of specimen H4 prior to test.
- Plate 5 - The unexposed surface prior to testing.
- Plate 6 - The unexposed surface after 32 minutes of testing.
- Plate 7 - The unexposed surface after 60 minutes of testing.
- Plate 8 - The unexposed surface after 120 minutes of testing.
- Plate 9 - The unexposed surface after 181 minutes of testing.
- Plate 10 - The unexposed surface after 240 minutes of testing.



Plate 3

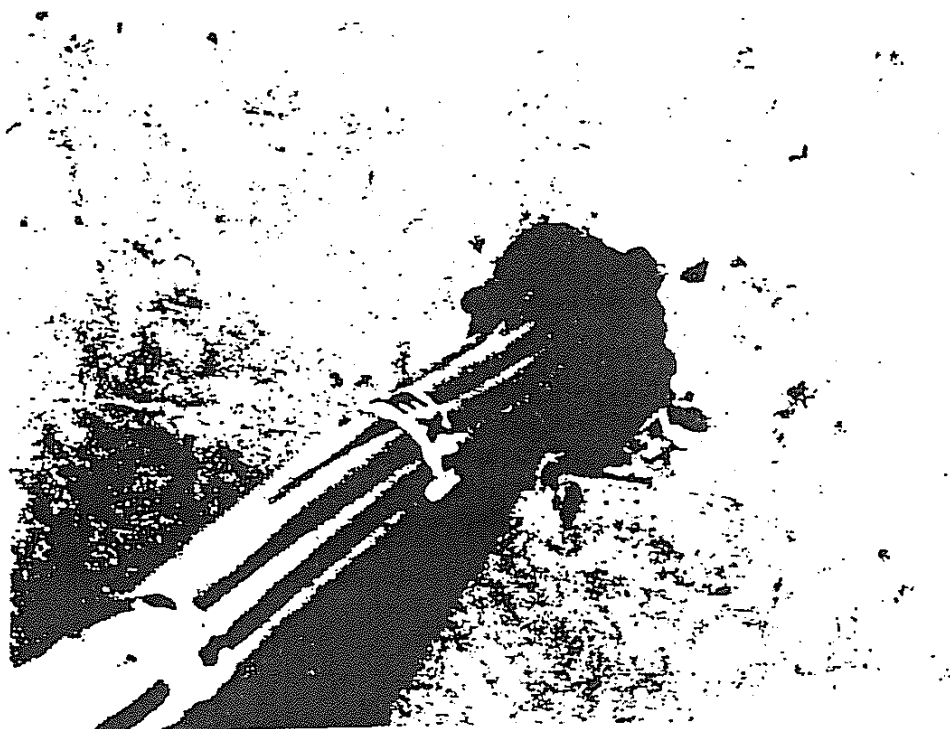


Plate 4

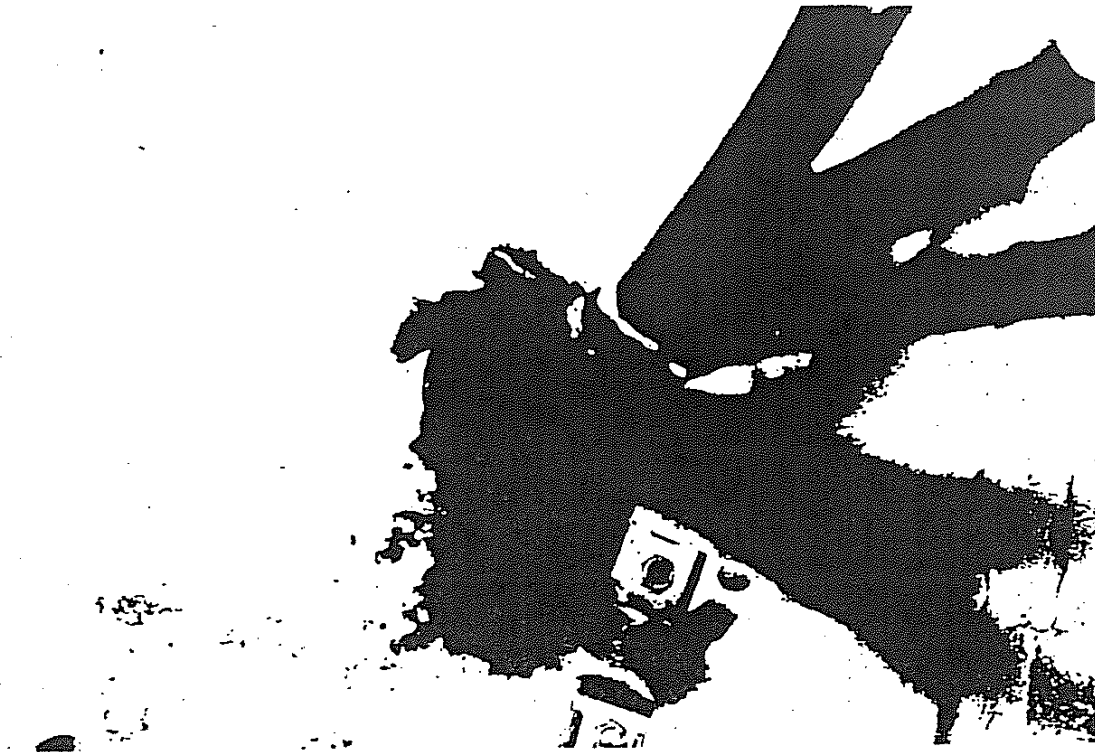


Plate 1

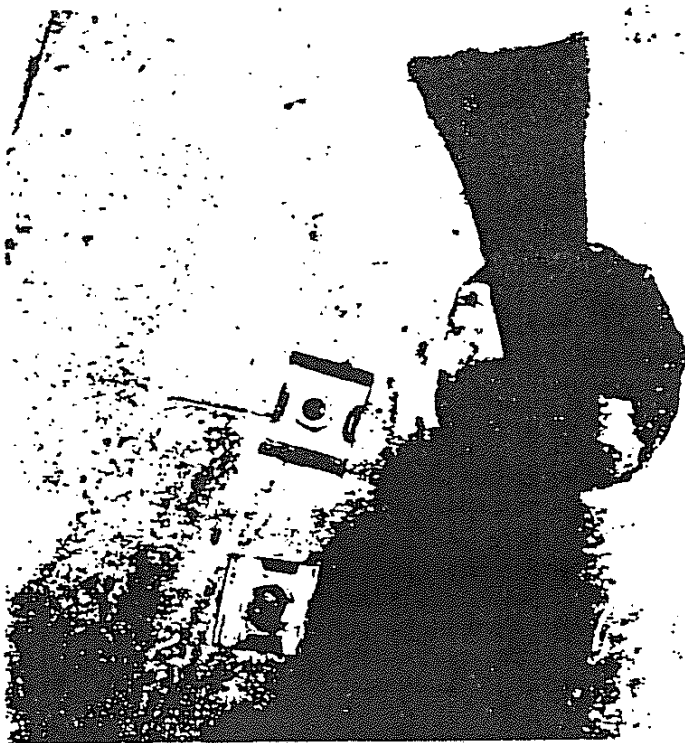


Plate 2

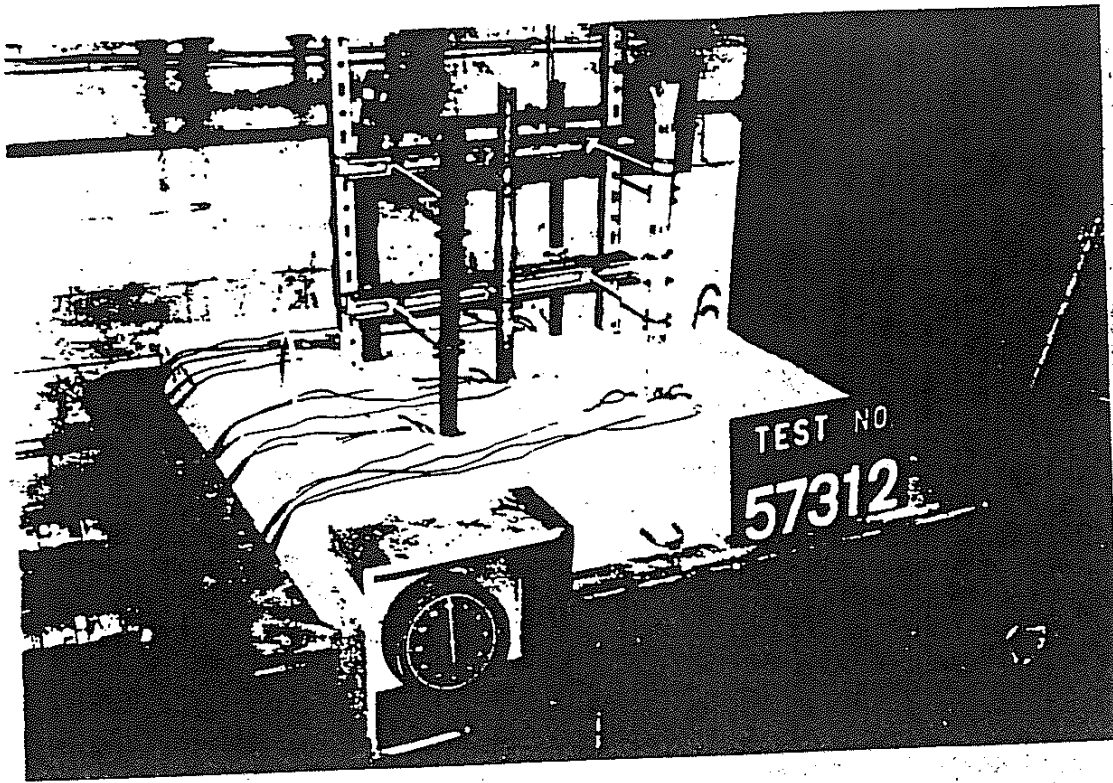


Plate 5

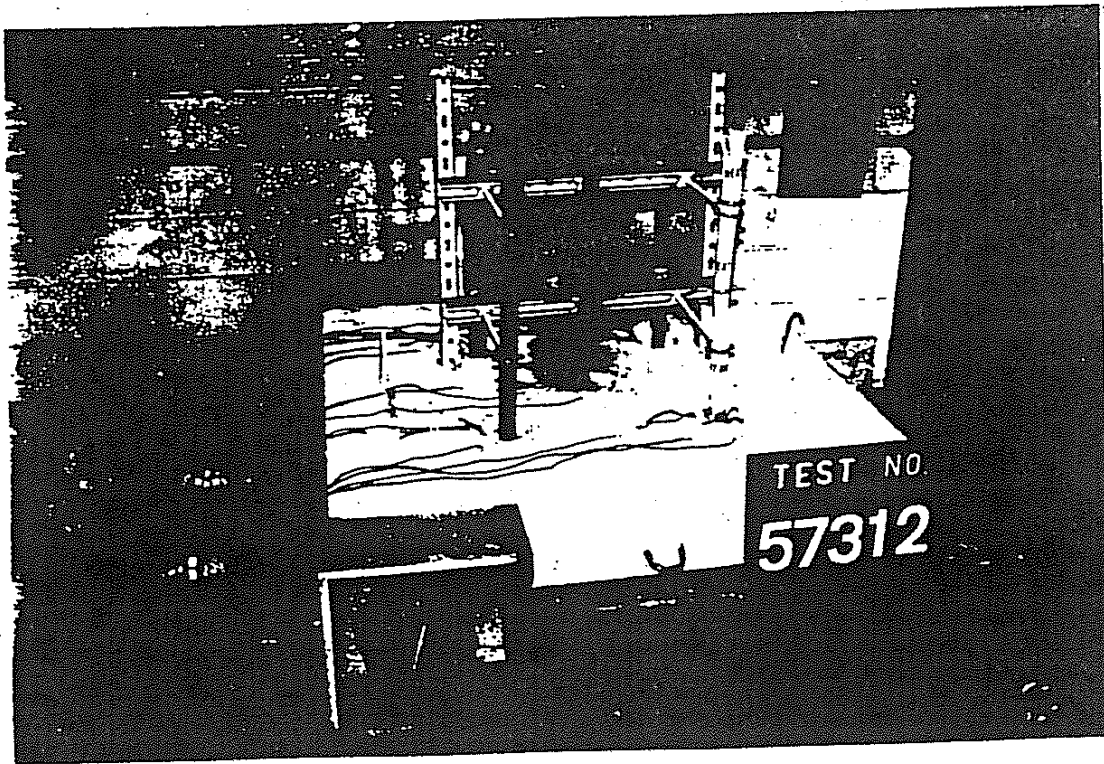


Plate 6

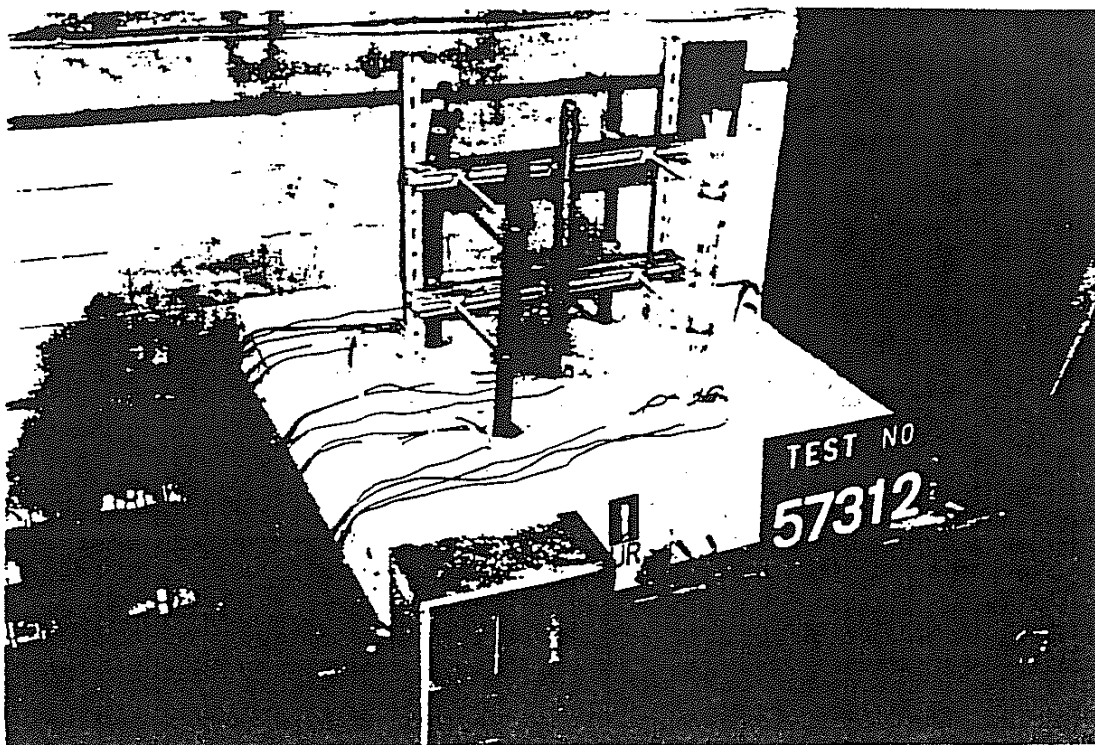


Plate 7

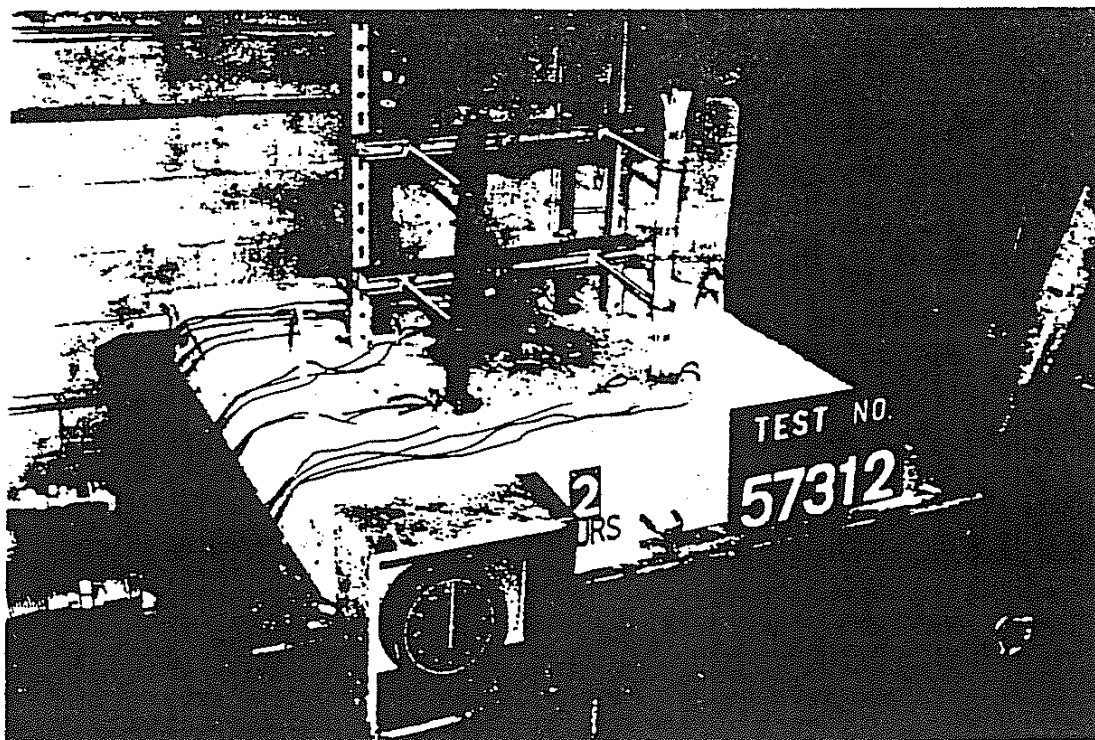


Plate 8

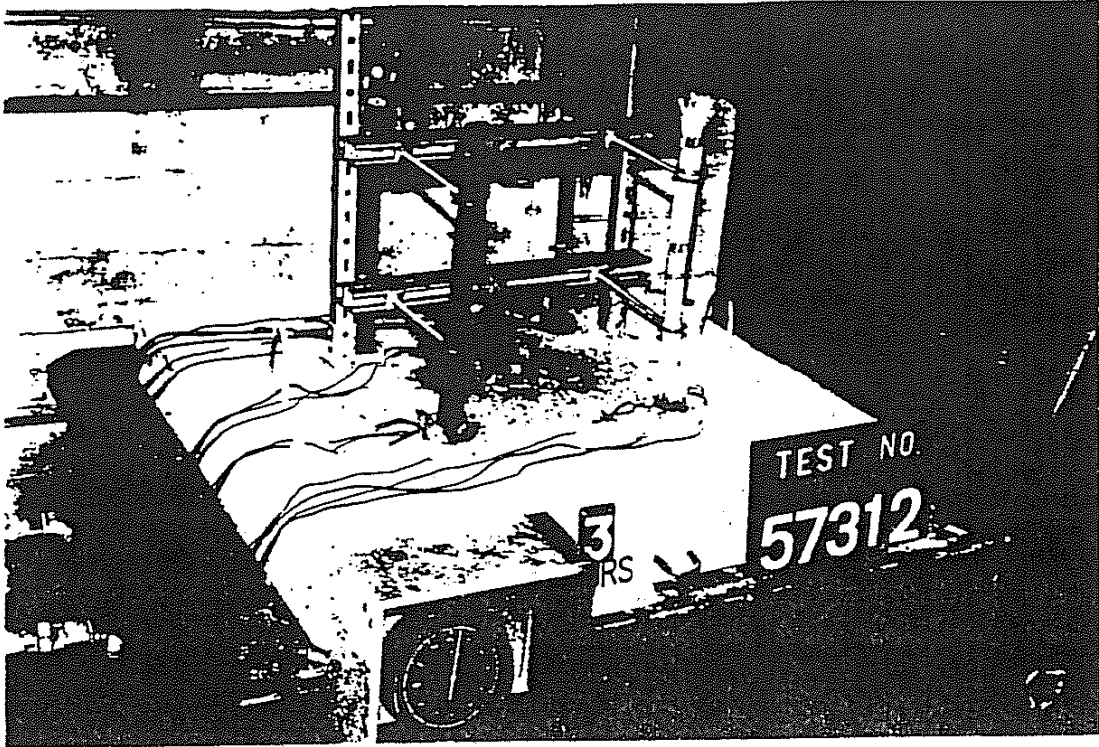


Plate 9

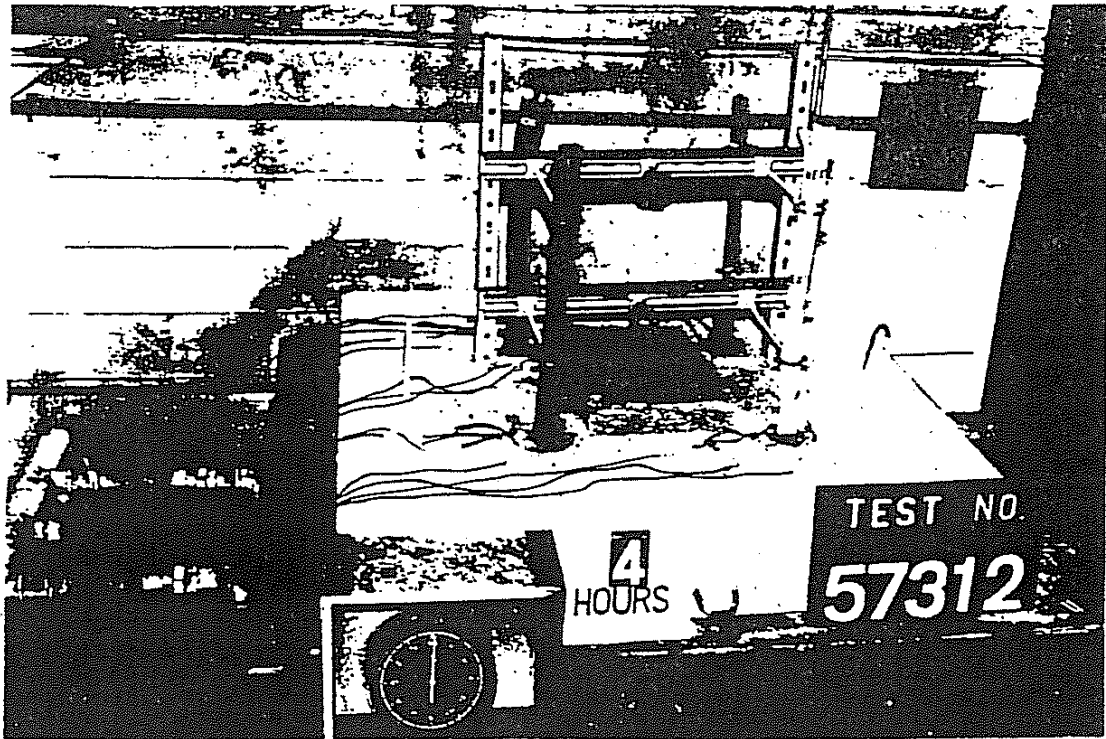


Plate 10



Testing. Advising. Assuring.

WF Report No. 342981a
Page 1 of 3
22nd July 2014

Mr Uwe Bohn
Hilti Entwicklungsgesellschaft mbH
86916 Kaufering
Hiltistr. 6
Germany

Review of Fire Test Report Referenced WARRES No. 57312A

1 Introduction

The report referenced WARRES No. 57312A relates to a fire resistance test performed utilising the heating conditions and general requirements specified in B476 Part 20; 1987, on four specimens of a floor mounted penetration seal within a vermiculite cement floor.

The section of vermiculite cement floor was provided with four circular apertures, each penetrated by various electrical service items. Each aperture was sealed with a 40 mm thick layer of 'Hilti CP 611' (new formulation) mastic. The seals were installed flush with the soffit of the floor slab. The results obtained were as follows:

Specimen Ref.	Aperture diameter mm	Penetration services	Integrity mins	Insulation mins
HI	120	3 No two core armoured cables each 23 mm diameter	240	75
H2	120	1 No four core armoured cable 32 mm diameter	240	52
H3	130	1 No four core armoured cable 40 mm diameter	240	60
H4	90	10 No sixteen core telecommunication cables 11 mm diameter	240	53

2 Confirmation of Specification

It has been confirmed by Hilti Entwicklungsgesellschaft mbH that there have been no changes to the specification or the construction given in the original report referenced WARRES No. 57312A.

3 Considerations

While there is now a published European Standard (EN 1366-3: 2009) relating to the fire resistance testing of linear joint sealing systems, this standard was not available when the test was conducted and therefore, as the fire resistance of the floor or wall construction into which the seal would be installed, is determined by test procedures detailed within BS 476: Part 20: 1987, 'Method for determination of the fire resistance of elements of construction (general principles)'.
The current test methodology with respect to the fire resistance testing of penetration sealing systems, i.e. utilising the heating conditions and performance criteria for integrity and insulation given in BS 476: Part 20: 1987 or EN 1363-1, has not been amended and would, therefore, still be utilised for this purpose.

At present there are no existing Resolutions adopted by the Fire Test Study Group since the original test was performed, which would affect the manner in which the test would be conducted, or the interpretation of the test results.

4 Conclusions

At present there are no additional resolutions adopted by the Fire Test Study Group since the original test was performed which would affect the manner in which the test would be conducted or the interpretation of the test results.

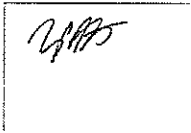
The procedures adopted for the original test have been re-examined and are similar to those currently in use.

Therefore, with respect to the fire resistance test report referenced WARRES No. 57312A its contents should remain valid until 1st August 2016.

5 Validity

This review is based on information used to formulate the original test report. No other information or data has been submitted by Hilti Entwicklungsgesellschaft mbH, which could affect this review.

Performed by:



C Abbott
Principal Certification Engineer
Exova warringtonfire

Reviewed By:



D. Hankinson
Principal Certification Engineer
Exova warringtonfire

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assessment report

Title:

The Fire Resistance
Performance of CP611A Pipe
Penetration Sealing Systems

WF Report No:

151439

Prepared for:

**Hilti
Entwicklungsgesellschaft
mbH**

Hiltistr. 6
86916 Kaufering
Germany

Date:

12th January 2006

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Executive Summary

Objective	This report considers the expected fire resistance performance of pipe penetration sealing systems previously tested in accordance with AS 4072.1: 1992, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.
Report Sponsor	Hilti Entwicklungsgesellschaft mbH
Address	Hiltistr. 6 86916 Kaufering Germany
Summary of Conclusions	It can be concluded that the CP611A pipe penetration sealing systems as discussed in this report should be capable of providing integrity and insulation performances as shown in Table 1, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.
Valid until	1 st January 2011

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Introduction

This report considers the expected fire resistance performance of pipe penetration sealing systems previously tested in accordance with AS 4072.1: 1992, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.

The penetration sealing systems discussed are required to provide an equal performance to those achieved in the reports referenced WARRES Nos. 60300/B (Specimens A9 & A10) & 62293/A (Specimens A10 & A11), with respect to BS 476: Part 20: 1987.

FTSG

The data referred to in the supporting data section has been considered for the purpose of this appraisal which has been prepared in accordance with the Fire Test Study Group Resolution No. 82: 2001.

Assumptions

It is assumed that the pipes will penetrate either masonry walls or aerated concrete floors similar to those specified in WARRES Nos. 62293/A & 60300/B.

It is assumed that the CP611A penetration seals and the penetrating items will be identical to those tested in the reports referenced WARRES Nos. 62293/A & 60300/B, unless otherwise detailed within this report.

Proposals

It is proposed that CP611A penetration sealing systems, as tested in the reports WARRES Nos. 62293/A & 60300/B, should be capable of providing integrity and insulation performances as shown in Table 1 below, if subjected to a test utilising the general principles of BS 476: Part 20: 1987:

Table 1

Supporting construction	PVC Pipe O/D & Wall thickness	Seal depth	Integrity	Insulation
100 mm thick Blockwork wall	40 x 3 mm	60 mm from fire side	245 minutes	245 minutes
100 mm thick Blockwork wall	40 x 3 mm	60 mm from non-fire side	245 minutes	245 minutes
120 mm thick Aerated concrete floor	40 x 3 mm	80 mm from fire side	180 minutes	157 minutes
120 mm thick Aerated concrete floor	40 x 3 mm	80 mm from non-fire side	180 minutes	180 minutes

Basic Test Evidence

WARRES No. 62293/A

The report referenced WARRES No. 62293/A and briefly described in the Supporting Data section for this report, details a test conducted utilising the general principles of AS 4072.1 1992, to evaluate intumescent pipe jackets and mastic seals for use with Polyvinyl Chloride service pipes penetrating masonry walls.

The test was also conducted simultaneously with a test utilising the test procedure of BS 476: Part 20: 1987 and prEN 1366-3: 1993.

WARRES No. 60300/B

The report referenced WARRES No. 60300/B and briefly described in the Supporting Data section for this report, details a test conducted utilising the general principles of AS 4072.1 1992, to evaluate intumescent pipe jackets and mastic seals for use with Polyvinyl Chloride service pipes penetrating aerated concrete floors.

The test was also conducted simultaneously with a test utilising the test procedure of BS 476: Part 20: 1987 and prEN 1366-3: 1993.

Assessed Performance

Comparison of test procedures

The tests referenced above were conducted in accordance utilising the general principles of AS 4072.1 1992 and it is therefore necessary to compare the test conditions and performance criteria of this Standard with those of BS 476: Part 20: 1987.

Time/ temperature relationship

The specified time/temperature relationships of the two Standards are almost identical, both being based upon the ISO 834 Standard and the heating conditions recorded within all of the referenced tests are well within the allowable tolerances of a BS 476: Part 20: 1987 test.

Pressure

The tested lower wall penetration seals were subjected to an over pressure of 16.2 (± 2) Pa and the floor penetration seals were subjected to an over pressure of 18-20 Pa, 100 mm below the soffit, relative to the laboratory. These over pressures are equal to or slightly greater than those which would be specified in BS 476: Part 20: 1987 and prEN 1366-3: 1993.

Comparison of performance criteria

A test in accordance with AS 4072.1: 1992, incorporates the following performance criteria:

- Integrity – evaluated on the unexposed surface via the occurrence of flames for more than 10 seconds and via openings within the specimen which allow a direct line of sight between the unexposed surface and the furnace chamber.
- Thermal insulation – evaluated via thermocouples attached to the unexposed surface, the maximum rise of which at any point must not exceed 180°C.

A test in accordance with BS476: Part 20: 1987 also incorporates two similar performance criteria:

- Integrity – evaluated on the unexposed surface via the occurrence of sustained flames, cotton pad and through gaps* above specified dimensions.
- Thermal insulation – evaluated via thermocouples attached to the unexposed surface, the mean rise of which must not exceed 140°C# and the maximum rise at any point must not exceed 180°C. Insulation failure also occurs simultaneously with integrity failure.

The criteria of the two tests are therefore considered to be very similar which would be expected to lead to comparable test results.

* EN 1366-3 does not include gap gauge criteria and therefore gap gauges would not be utilised in a test which observed the guidance of this standard.

EN 1366-3 does not include mean temperature rise criteria and therefore this criteria would not be utilised in a test which observed the guidance of this standard.

The only significant differences between the performance criteria of these tests would therefore be the use of cotton pads, which is not specified in AS 4072.1: 1992. However the observations recorded within the test reports indicate no through gaps or areas of glowing on the relevant specimens (WARRES Nos. 60300/B Specimens A9 & A10 & 62293/A Specimens A10 & A11), so neither application nor ignition of a cotton pad would be likely under these circumstances.

It is therefore considered that both the test conditions and performance criteria utilised in the tests referenced WARRES Nos. 60300/B & 62293/A are directly comparable with those of a test conducted utilising the general principles of BS 476: Part 20: 1987 in conjunction with additional guidelines from EN 1366-3 and therefore no reduction in either integrity or insulation performance would be anticipated in such a test.

Conclusions

CP611A pipe penetration sealing systems as discussed in this report should be capable of providing integrity and insulation performances as shown in Table 1, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.

Validity

This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to warringtonfire the assessment will be unconditionally withdrawn and Hilti Entwicklungsgesellschaft mbH will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 1st January 2011, after which time it is recommended that it be returned for re-appraisal.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

Summary of Primary Supporting Data

WARRES No. 62293/A

A test conducted utilising the general principles of AS 4072.1 1992, to evaluate intumescent pipe jackets and mastic seals for use with Polyvinyl Chloride service pipes penetrating masonry walls.

The test was also conducted simultaneously with a test utilising the test procedure of BS 476: Part 20: 1987 and prEN 1366-3: 1993.

The results of the test (for the relevant specimens) were as follows:

Specimen Reference	PVC Pipe O/D & Wall thickness	Seal depth	Integrity	Insulation
A10	40 x 3 mm	60 mm from fire side	245 minutes	245 minutes
A11	40 x 3 mm	60 mm from non-fire side	245 minutes	245 minutes

**WARRES No.
60300/B**

A test conducted utilising the general principles of AS 4072.1 1992, to evaluate intumescent pipe jackets and mastic seals for use with Polyvinyl Chloride service pipes penetrating aerated concrete floors.

The test was also conducted simultaneously with a test utilising the test procedure of BS 476: Part 20: 1987 and prEN 1366-3: 1993.

The results of the test (for the relevant specimens) were as follows:

Specimen Reference	PVC Pipe O/D & Wall thickness	Seal depth	Integrity	Insulation
A9	40 x 3 mm	80 mm from non-fire side	180 minutes	180 minutes
A10	40 x 3 mm	80 mm from fire side	180 minutes	157 minutes

Declaration by Hilti Entwicklungsgesellschaft mbH.

We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82: 2001.

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which the assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

We are not aware of any information that could adversely affect the conclusions of this assessment.


If we subsequently become aware of any such information we agree to cease using the assessment and ask warringtonfire to withdraw the assessment.

Signed:

.....
For and on behalf of:

.....

Signatories


Responsible Officer
C. Johnson* - Technical Officer


Approved
D Hankinson* - Technical Consultant

* For and on behalf of warringtonfire.

Report Issued: 12 th January 2006
--

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

This is copy no 1 of assessment report referenced 151439

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Testing. Advising. Assuring.

WF Report No. 306063/E
 Page 1 of 2
 29th March 2011

Mr Michael-Uwe Bohn
Hilti Entwicklungsgesellschaft mbH
 86916 Kaufering
 Hiltistr. 6
 Germany

Review of Assessment Report Referenced WF No. 151439

1 Introduction

The assessment report referenced WF No. 151439 provided a considered opinion regarding the expected fire resistance performance of pipe penetration sealing systems previously tested in accordance with AS 4072.1: 1992, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.

The report concluded that the CP611A pipe penetration sealing systems as discussed in this report should be capable of providing integrity and insulation performances as shown in Table 1, if subjected to a test utilising the general principles of BS 476: Part 20: 1987.

Table 1

Supporting construction	PVC Pipe O/D & Wall thickness	Seal depth	Integrity	Insulation
100 mm thick Blockwork wall	40 x 3 mm	60 mm from fire side	245 minutes	245 minutes
100 mm thick Blockwork wall	40 x 3 mm	60 mm from non-fire side	245 minutes	245 minutes
120 mm thick Aerated concrete floor	40 x 3 mm	80 mm from fire side	180 minutes	157 minutes
120 mm thick Aerated concrete floor	40 x 3 mm	80 mm from non-fire side	180 minutes	180 minutes

2 Confirmation of Specification

It has been confirmed by Hilti Entwicklung Befestigungstechnik GmbH that there have been no changes to the specification or the construction given in the original report referenced WF No. 151439.

3 Conclusions

The data used for the original appraisal has been re-examined and found to be satisfactory.

The procedures adopted for the original assessment have also been re-examined and are similar to those currently in use.

Therefore, with respect to the assessment of performance given in WF No. 151439, the contents should remain valid until the 1st April 2016

4 Validity

This review is based on information used to formulate the original test report. No other information or data has been submitted by Hilti Entwicklungsgellschaft mbH, which could affect this review.

The original appraisal report was performed in accordance with the principles of the UK Fire Test Group Resolution 82: 2001. This review has therefore been conducted using these principles.

Performed by:



C. Johnson
Principal Certification Engineer
Exova warringtonfire

Reviewed By:



D. Hankinson
Principal Certification Engineer
Exova warringtonfire

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W : www.exova.com



Testing. Advising. Assuring.

WF Report No. 353538/D Issue 2

Page 1 of 2

24th June 2015

Mr Uwe Bohn
Hilti Entwicklungsgesellschaft mbH
86916 Kaufering
Hiltistr. 6
Germany

Review of Fire Test Report Referenced WARRES No. 62293/A

1 Introduction

The report referenced WARRES No. 62293/A relates to a fire resistance test performed using the general principles of Australian Standard 4072.1-1992, to provide information which may be used for appraisal purposes.

The test was conducted on a blockwork wall assembly which was penetrated by eleven polyvinyl chloride service pipes. Nine of the pipes were provided with Hilti CP 642 Fire Stop Jackets and two pipes were sealed around the outside with Hilti CP611A mastic.

For full details of the tested specimens and the individual results achieved the original test report should be referred to.

2 Confirmation of Specification

It has been confirmed by Hilti Entwicklungsgesellschaft mbH that there have been no changes to the specification or the construction given in the original report referenced WARRES No. 62293/A, apart from a change in one of the components of the formulation of the tested CP611A mastic.

Hilti Entwicklungsgesellschaft mbH have provided documentation from the supplier of the raw materials together with test reports from an independent testing laboratory relating to the performance characteristics of the original formulation and the new formulation of CP611A. These have been considered in relation to the specific use of the product in the tested system and it is considered that the changes are not of fundamental significance to the performance of the system.

3 Conclusions

At present there are no additional resolutions adopted by the Fire Test Study Group since the original test was performed which would affect the manner in which the test would be conducted or the interpretation of the test results.

Although there is a newer version of the standard - Australian Standard 4072.1-2005, used in conjunction with Australian Standard 1530.4-2005, the procedures adopted for the original test have been re-examined and are similar to those currently in use.

Therefore, with respect to the fire resistance test report referenced WARRES No. 62293/A its contents should remain valid until 1st July 2017.

4 Validity

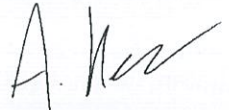
This review is based on information used to formulate the original test report. No other information or data has been submitted by Hilti Entwicklungsgesellschaft mbH, which could affect this review.

Performed by:

Reviewed By:



C Abbott
Principal Certification Engineer
Exova Warringtonfire



A Kearns
Technical Manager
Exova Warringtonfire

Issue 2: 17th July 2015

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Hilti (Hong Kong) Ltd.
Unit 3 5/F Harbour Centre Tower 2
8 Hok Cheung Street Hung Hom
Kowloon

26 May 1994
Handwritten initials and a large cross mark.

Dear Sirs,

Fire Resisting Penetration Sealing System
As Supplied By Hilti (GB) Ltd.

Thank you for your letters dated 4.3.94 and 27.4.94 and the accompanying test/assessment reports on the above. You are asking for comments on the acceptability of the fire resisting product in the context of relevant provisions of the Buildings Ordinance, Chapter 123 of the Law of Hong Kong and its subsidiary legislation.

Under the Buildings Ordinance, "authorized persons" (i.e. architects, engineers or surveyors registered with the Building Authority) are required to supervise building works including the selection and installation of fire resisting products and to certify compliance with the Buildings Ordinance upon completion of works. Authorized persons are therefore responsible for ensuring the safety requirements inter alia of fire resisting products in the building projects which they have been appointed by the developer to coordinate and supervise.

In establishing the acceptability of fire resisting products, reference may be made to the performance standards laid down in Building (Construction) Regulation 90, the current Code of Practice for Fire Resisting Construction issued by the Building Authority and British Standard 476: Parts 20 to 24. Reliance may also be placed on the test/assessment report prepared by a recognized laboratory or an equivalent establishment.

The Buildings Department has a list of recognized laboratories. This is available for reference at our office :

Technical Administration (Building) Unit
Buildings Department
11/F Murray Building
Garden Road Hong Kong

Before fire resisting products are installed in a building project, the authorized person appointed for the project should be approached for advice and guidance.

Your test/assessment reports are returned herewith. In this respect, please note that paragraph 3 of my letter dated 25 January 1994 is no longer applicable. The delay in replying is regretted.

Yours faithfully,



(Patrick H. Tsui)
Technical Secretary/Building
for Director of Buildings

消防處
防火組
香港九龍尖沙咀東部康莊道1號
消防總部大廈



FIRE SERVICES DEPARTMENT,
FIRE PROTECTION BUREAU,
FIRE SERVICES HEADQUARTERS BUILDING,
No. 1 Hong Chong Road,
Tsim Sha Tsui, East, Kowloon,
Hong Kong.

本處檔號 Our Ref.: FPB 207/0005
來函檔號 Your Ref.: L026/92HK
電訊掛號 Telex: 39607 HKFSD HX } (24 小時 Hours)
圖文傳真 Fax: 852-3110066 }
852-3689744 }
電話 Tel. No.: 733 7596

29 April 1992

Hilti (Hong Kong) Ltd.,
Unit 3, 5/F, Harbour Centre,
Tower 2,
8 Hok Cheung Street,
Hungghom, Kowloon.

Dear Sirs,

"HILTI" Fire Prevention System

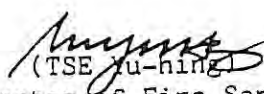
I refer to your letter of 30.3.92 and the enclosures attached thereto.

Based on the information contained in your letter under reference and the given test report, I understand that the captioned product is a building material which should be approved by the Director of Buildings and Lands. As such, I am not in a position to process your application and you are advised to refer your enquiry to the Director of Buildings and Lands, whose address is listed hereunder :-

The Director of Buildings and Lands,
(Attn.: Technical Secretary/Building, B.O.O.)
Murray Building,
Garden Road,
Central,
Hong Kong.

Please feel free to contact us should you have any other question in this matter.

Yours faithfully,


(TSE Yu-hing)
for Director of Fire Services

TYH/jt



ARCHITECTURAL SERVICES DEPARTMENT 建築署

QUEENSWAY GOVERNMENT OFFICES, 66 QUEENSWAY, HONG KONG. 香港金鐘道六十六號金鐘道政府合署
FAX 852-2869 0289

Our Ref : ASD 16/92101/AML/APP
Your Ref. : -----
Tel. No. : 2867 3631
Fax No. : 2877 0594

06 June 1997

Hilti (HK) Ltd
17/F, Tower 6, China HK City,
33 Canton Rd., TST

Dear Sirs,

Architectural Services Department
List of Acceptable Materials
Hilti Firestop Products
Ref. no. 0001P

I am pleased to inform you that approval has been given to include the above product/material in this Department's List of Acceptable Materials. Initially, this listing is for a probationary status and this will be reviewed after the submission of satisfactory performance reports on completion of projects undertaken by this Department where your product has been used.

The Architectural Services Department List of Acceptable Materials is a restricted internal document. This letter should not be used for commercial or marketing purposes and failure to comply with this may result in the removal of the product from the List.

Yours faithfully,

(W.M. TANG)
Technical Secretary/2
for Chief Architect/ Central Management Branch
Architectural Services Department

Attn. : To whom it may concern

Date : 16 Dec 2013

Ref. : LE/JT/13006

Subject : Hilti CP611A Intumescent Firestop Mastic

Dear Sirs / Madams,

Enclosed please find the information of Hilti CP611A Intumescent Firestop Mastic

Brand Name : Hilti

Model Name : Hilti CP611A Intumescent Firestop Mastic

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704 & 708B, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong.

Country of Origin : Germany

Should you have further questions, please do not hesitate to contact our Technical Representatives or Customer Service Hotline at 8228-8118.

Yours sincerely,

Hilti (Hong Kong) Ltd.

Joe TAM

Product Manager



July 30, 2014

To Whom It May Concern:

Re: Hilti Intumescent Firestop Sealant CP 611A – LEED Info.

- The Hilti Intumescent Firestop Sealant CP 611A is manufactured in Germany.
- The package of Hilti Intumescent Firestop Sealant CP 611A can be completely recycled.
- There is no recycled content in Hilti Intumescent Firestop Sealant CP 611A and it cannot be recycled.
- The Hilti Intumescent Firestop Sealant CP 611A does not share any rapidly renewable materials.
- The VOC content of Hilti Intumescent Firestop Sealant CP 611A is 56 g/l.

If you would like to know more about Hilti solutions for LEED buildings or should you have any further question please feel free to contact me at my email or mobile number as shown below.

Sincerely,



Andrew Lau

Product Manager - Firestop

Hilti (Hong Kong) Limited

Email: andrew.lau@hilti.com

Mobile: (852) 9843-6291

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong

Kowloon | Hong Kong

P +852-8228 8118 | **F** +852-2954 1751

www.hilti.com.hk

1 Identification of substance:

- **Product details:**
- **Trade name:** CP 611A
- **Application of the substance / the preparation** Acrylic sealant
- **Manufacturer/Supplier:**
Hilti AG
Feldkircherstr. 100
Postfach 333
FL-9494 Schaan Liechtenstein
Tel: +423 234 2111
Fax: +423 234 2965
- **Informing department:** see section 16
- **Emergency information:**
Tel.: 00423 / 234 - 2111
Fax.: 00423 / 234 - 2965
Schweizerisches Toxikologisches Informationszentrum - 24 h Service
Tel.: 0041 / 1 251 51 51 (international)

2 Composition/Data on components:

- **Chemical characterization**
- **Description:** Watery, acrylate dispersion with filler
- **Dangerous components:** Void

3 Hazards identification

- **Hazard designation:** void
- **Information pertaining to particular dangers for man and environment** void
- **Classification system**
The classification is in line with current EC lists. It has been expanded, however, by information from technical literature, by information furnished by suppliers and by national regulations which have to be observed in chapter 15.

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Take affected persons into the open air and position comfortably
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing** Seek immediate medical advice.

5 Fire fighting measures

- **Suitable extinguishing agents** CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
Can be released in case of fire
Carbon monoxide (CO)
Carbon dioxide (CO₂)
- **Protective equipment:** Do not inhale explosion gases or combustion gases.

6 Accidental release measures

- **Person-related safety precautions:**
Ensure adequate ventilation
Wear protective clothing.
Particular danger of slipping on leaked/spilled product.
- **Measures for environmental protection:** Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Collect mechanically.
Dispose of contaminated material as waste according to item 13.

7 Handling and storage

- **Handling**
- **Information for safe handling:** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and containers:** Keep containers securely closed and dry, store at 5 - 25°C.
- **Information about storage in one common storage facility:** Not required.

(Contd. on page 2)

FLE

Printing date 02.12.2005

Reviewed on 02.12.2005

Trade name: CP 611A

· **Further information about storage conditions:** None.

(Contd. of page 1)

8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures** The usual precautionary measures should be adhered to general rules for handling chemicals.
- **Breathing equipment:** Not necessary if room is well-ventilated.
- **Protection of hands:** Protective gloves.
- **Material of gloves** Synthetic gloves
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

· General Information

Form:	Pasty
Colour:	Dark grey
Odour:	Characteristic

· Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined

Flash point:	Not determined
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· Ignition temperature:

Decomposition temperature:	> 180°C
-----------------------------------	---------

Self-inflammability:	Product is not selfigniting.
-----------------------------	------------------------------

Danger of explosion:	Product is not explosive.
-----------------------------	---------------------------

Density at 20°C	ca. 1,3 g/cm ³ (DIN 51757)
------------------------	---------------------------------------

· Solubility in / Miscibility with

Water:	mixable
---------------	---------

pH-value at 20°C:	8 - 9
--------------------------	-------

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** No dangerous decomposition products known

11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effect known.
- **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information:

- **Ecotoxicological effects:** Not determined
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

-FLE-

(Contd. on page 3)



Printing date 02.12.2005

Reviewed on 02.12.2005

Trade name: **CP 611A**

(Contd. of page 2)

13 Disposal considerations

- **Product:**
- **Recommendation** For disposal, local regulations issued by the authorities must be observed.

- **European waste catalogue**

08 00 00	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 04 00	wastes from MFSU of adhesives and sealants (including waterproofing products)
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID-GGVS/E Class:** -

- **Maritime transport IMDG:**
- **IMDG Class:** -

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

- **Transport/Additional information:** Not dangerous according to the above specifications.

15 Regulatory information

- **Designation according to EC guidelines:**

The product is not subject to classification according to the calculation methods of the "General Classification Guideline for Preparations of the EC" as issued in the last version.
Observe the normal safety regulations when handling chemicals.

- **Safety phrases:**

- 2 Keep out of the reach of children.
- 25 Avoid contact with eyes.
- 36 Wear suitable protective clothing.

- **National regulations**

- **Technical instructions (air):**

Class	Share in %
Wasser	10-25
NK	<2,5

- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing data specification sheet:**

Hilti Corp.
BU Chemicals
Quality/Safety/Environment

FL-9494 Schaan
Tel: 00423 234 2046
Fax: 00423 234 6046

- **Contact:** Christoph Aubauer

-FLE-



Job / Application Reference

<u>Date</u>	<u>Project Name</u>	<u>Contractor</u>	<u>Product Name</u>	<u>Application</u>
Jan-11	Airport Development		Firestop sealant CP 611A INT	water pipe / pipe duct fixing
Mar-11	Airport Development	ATAL BUILDING SERVICES ENGINEERING	Firestop sealant CP 611A INT	cable penetration sealing
Jul-11	DISNEYLAND		Firestop sealant CP 611A INT	MVAC fixing
Aug-11	Tamar Development		Firestop sealant CP 611A INT	Air duct penetration through fire rated board
Jun-12	North Lantau Hospital		Firestop sealant CP 611A INT	Metal pipe penetration sealing
Sep-13	Others Private Residential Projects in Macau	City of dream	Firestop sealant CP 611A INT	cable / cable tray penetration sealing