Michael Jackson Consulting
Chartered Structural Engineers

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Our Ref: 2613/DS

Date: 15/02/2017

Condition Survey of Existing Roof

recorded at

The Forum
9-17 Highgate Rd
Kentish Town
London
NW5 1JY

on behalf of

Academy Music Group Ltd
211 Stockwell Road
Brixton
London
SW9 9SL

Re-Roof to Main Auditorium

Purpose of Report

The purpose of this report is to bring together various surveys carried out documenting the current condition of the asbestos roof covering and to provide historical context to the original roof construction.

History Relating to Original Roof Covering

The building was constructed in 1934 and around this time corrugated asbestos cement sheets were prevalent in the construction industry. Original construction drawings (Appendix A) have been obtained and although a little faded, the roof construction is labelled as 'Trafford Tile', which was one of the two primary shapes provided at the time of construction (the other being 'Fibrotile'). This would indicate that the current roof covering is indeed the original roof covering from the 1930's. In addition to the original construction drawings we carried out a structural analysis of the existing steel roof trusses to determine the allowable roof loads and it was noted that a roofing materials heavier than corrugated sheets, such as slates or concrete tiles, would fail the roof. This further corroborates the existing roof covering is original.

Current Condition

A full building survey was carried out by BuroHappold in June 2016 and from this a further report (Appendix B) was produced to aid the Planning and Listed Building Application which details the current condition of the roof and provides recommendations for the future.

The report indicates the existing roof covering is nearing the end of its useful life. The typical life expectancy of a cement-asbestos sheet was given as 30 years but in some instances, it can be found that roofs of this material are still in good condition after 50 years.

Asbestos Report

An asbestos survey was carried out by SB Asbestos Management Ltd in March 2016. An excerpt of the report, detailing the roofing materials and the condition, is included in Appendix C.

The report indicates the roof is formed from a Chrysotile (White) Asbestos Cement Sheeting. Through age and weathering this has given rise to numerous areas of damage to the roof covering leading to water ingress and the need for increasingly regular repairs being conducted requiring working at height and working with Asbestos Materials.

Brittleness/Fragility

The existing roof is extremely fragile. Working on it safely required large spreader boards to be provided to spread the loads to ensure the asbestos sheets do not crack or collapse, under the weight of the people carrying out the repairs. The roof cladding is now so old, deteriorated and fragile, that it is no longer practical to provide spreader boards on the cladding to allow access for repairs as the roof sheets now crack so easily under minimal amounts of weight/pressure. Furthermore, the increasing number of cracks and holes to the roof covering are allowing water into the building and onto the ornate plaster ceiling. Clearly this will have an effect on the integrity of the ceiling over a short period of time unless the ceiling can be kept dry.

Thermal Performance

U-values for the existing asbestos cement sheets have not been calculated but can be compared with the modern day equivalent cement sheets, which contains no asbestos. Typically, for an uninsulated 'Profile 6' high strength fibre cement roof sheet, the U-value is 7 W/m²K. Although this value does not comply with current Building Regulations, it does aid the venue when fully occupied during a gig, to allow the heat generated to escape from the building without the need for mechanical ventilation.

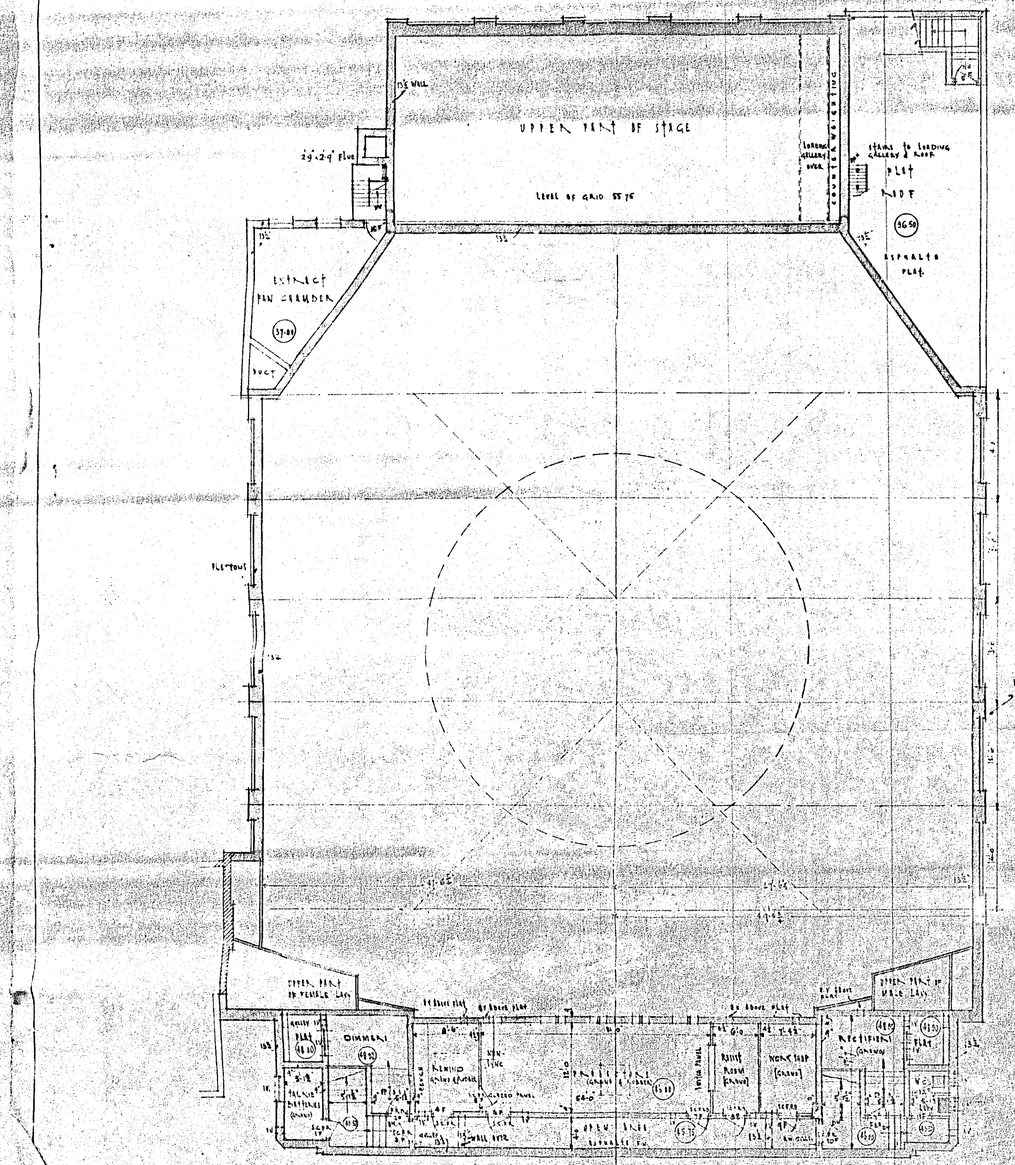
The replacement Kingspan Sinusoidal KS1000 SRW product (Appendix D) comes in three different overall thicknesses, and with the above in mind, the overall thickness chosen is 70mm. This will increase the overall thickness of the roof by approximately 65mm and will give a U-value of 0.46W/m²K. The suggested U-value for a non-domestic pitched roof, insulated at rafter level, is 0.14W/m²K. Should the aforementioned product by approved, the venue will be required to monitor the heat build-up within the building to determine if mechanical ventilation is required at a later date.

Justification for Replacing

Given the age of the building, 83 years old, and the life expectancy of the existing roof covering, 50 years, it would be fair to say that the roof is now well beyond its useful life. Over the years, the roof has been patched up and repaired (Appendix E) to prevent water ingress and damage to the ornate plaster ceiling below. Due to the roof covering becoming increasingly fragile through age, carrying out further repairs has become extremely hazardous as full access to the roof is impossible without causing further damage.

Within the void, below the roof covering, technical access is required to allow the plaster ceiling to be inspected, access rigging points and carry out general maintenance. Due to pieces of the existing roof falling into the void, the area is deemed contaminated with asbestos and access to carry out simple tasks has become challenging. To access the void at present requires personnel to be asbestos trained and they are required to wear a full protective suit and mask, which makes working in this environment extremely difficult and unsuitable for general staff.

APPENDIX A



REFERENCES.
I.V. - - INLET VENT.
O.V. - - OUTLET VENT
S.C.F.R.D. - SELF CLOSING FIRE RESISTING DOOR.
F.R.D. - FIRE RESISTING DOOR.

PROJECTOR FLOOR PLAN.
[DOORS F]
Nos 1 - 16

ROOF VOID PLAN.
[DOORS G]
Nos 1 - 6

SCALE

AMENDED 14.5.34
AMENDED 24.5.34

WING No 4476
BY L.A.G. TRCD BY D.P.
D 1934

NEW CINEMA, HIGHGATE, N.W.

J. STANLEY BEARD & BENNETT
CHARTERED ARCHITECTS
101/105 BAKER ST. W.1


FORUM
SIDE ELEVATION.
FRONT ELEVATION.
BACK ELEVATION
LADIES LAVY
FEMALE STAFF LAVY
EXIT FROM BALCONY
WEALDEN KILN STOCKS
AREA LEVEL
SIDE ELEVATION. (GREENWOOD PLACE)
SCALE 8 FEET = 1 INCH
SIDE ELEVATION.
EXTRACT FAN CHAMBER
ORGAN CHAMBER
ORGAN CHAMBER & BLOWER RM.
GROUND LEVEL
CANOPY
ENTRANCE TO STAGE
DRAWING Nº 4171
DRAWN BY D.P.
CHECKED BY
NEW CINEMA HIGHGATE ROAD. K... TOWN N.W.
J. STANLEY BEARD & BENNETT
CHARTERED ARCHITECTS
101/103 BAKER ST. W.1

APPENDIX B

BUROHAPPOLD ENGINEERING

08 February 2017

Live Nation (Music) UK Ltd
2nd Floor Regent Arcade House
19-25 Argyll Street
London W1F 7TS

For the attention of Russell Duly

RE: The Forum, Pitched Roof Coverings

Dear Russell,

Further to our recent inspections and our discussion yesterday, please find below summary of our notes in relation to the present condition of the pitched roof coverings at The Forum, Kentish Town.

Observations (Main Roof):

The roof coverings at the venue consist of profiled cement asbestos roof sheets (1000W x 1200L) with matching ridge and hip capping sheets, which are mechanically fixed with steel hook bolts attached to the steel angle roof structure below.

The profiled cement asbestos roof sheets have been patch repaired numerous times with material such as flashband tape, liquid applied Acrypol, bitumen paint and adhered bituminous fibre patches/sheet used to temporarily resolve either damaged sheets or water ingress.

Some sections of the lapped joints to the sheets are lifted with daylight evident from within the roof void which would suggest possible defective hook bolts in these locations. Eaves roof sheets to the south facing roof slope are impact damaged which could lead to water ingress in heavy rainfall.

Sections of the roof sheets to the north-east corner are damaged and liable to water ingress at present. Some roof sheets were noted to have been replaced historically with either similar or cement based roof sheets. As this type of roof covering is classified as a fragile roof covering access for repairs and replacement work is particularly difficult, in terms of safety, and costly. As noted within the structural assessment it is understood that there has been some more recent water ingress to parts of the roof void with buckets located beneath to catch and water.

The heads of some of the steel hook bolt fixings are corroded with some painted with either bitumen or Acrypol to prevent further deterioration. The bolts are thought to be original and water ingress around them will corrode and weaken their fixing strength in the long term.

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Recommendations:

The profiled cement asbestos roof covering will continue to leak due to the existing holes, raised roof sheets, poor temporary repairs, existing damaged sheets and generally poor and unsafe temporary access to all areas of the pitched roof (please refer to Figure 4-1 Roof Plan below).

The main roof covering is nearing the end of its useful life and will require replacement within the next three years in order to prevent further significant and damaging water ingress to the roof void structure and plastered ceiling below. Due to the nature of the asbestos coverings and load bearing capacity of the roof structure it is unlikely that options such as overcladding the existing roof would be appropriate or practical and reinforcement of the existing roof would need to be considered.

Based upon the above we recommend that the roof covering is carefully removed in accordance with HSE guidelines and replaced with a new roof covering to provide a long-term watertight solution.

Rainwater Goods:

Where visible the eaves gutters are heavily choked with debris such as moss and small sections of roof sheet with vegetation growth evident within the gutter. Sections of the half-round gutters are damaged and defective.

Some standing water is trapped within the gutter, which will add weight to the gutter and place additional loads on the fixings. Some of the outlets where noted to be blocked with debris. The hopper and downpipe fixed to the party wall is loosely fixed and liable to leaking. The outlets are only approximately 50mm in diameter and therefore quite small for the size of the roof areas they are serving with no visible method of preventing blockages.

On the basis of the above, it is recommended that these are also considered for replacement at the same time as the main roof covering with consideration given to access for periodic clearing of debris to ensure the efficient discharge of rainwater.

An outline plan of the roof areas at the venue is provided overleaf.

O2 Forum - **Roof Plan**

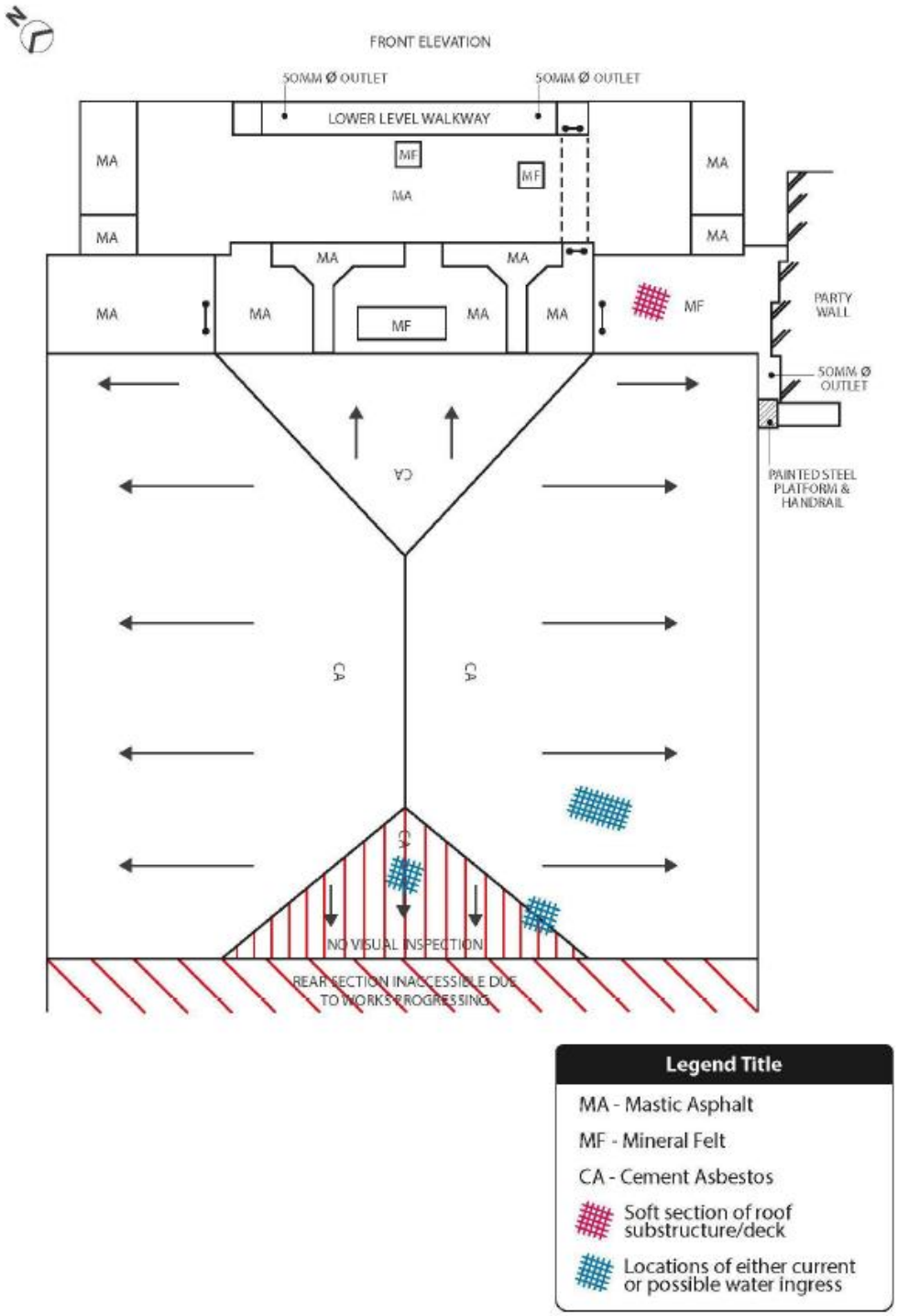


Figure 4—1 Roof Plan

BUROHAPPOLD ENGINEERING

I trust that the above is of some assistance and adequately summarises our initial findings, however, should you have any queries, please do not hesitate to contact me on the usual details.

Yours sincerely
on behalf of BuroHappold Limited

Phillip Barnett
Senior Consultant
ddi
email Phillip.Barnett@BuroHappold.com

APPENDIX C

7 The Villas – West End – Stoke-on-Trent – Staffordshire – ST4 5AQ

Report Number: 2687
Survey Date: 10/03/2016
Issue : 1.1

Management Survey for Asbestos Containing Materials

Material Risk Assessment &

Asbestos Register

CLIENT

Live Nation (Music) UK Limited
Regent Arcade House
19-25 Argyll Street
London
W1F 7TS

SURVEYOR(S)

J Wilshaw CoC (Asbestos)

TESTING LABORATORY

Westland Environmental Safety Ltd, UKAS No. 7567

CONTENTS

PART 1: ASBESTOS MATERIALS

1.1 Asbestos Register

The survey identified the Asbestos Containing Materials (ACMs) detailed below. Further information regarding each known or presumed ACM and subsequent recommendations are given within the individual material reports and risk assessments (refer to Section 2.4).

The information contained within the Asbestos Register forms an important part of the Asbestos Management Plan required by *Regulation 4* of *The Control of Asbestos Regulations 2012*.

The condition of known ACMs and the risks that they present should be reviewed on an annual basis, or more frequently where there is potential for damage or rapid deterioration.

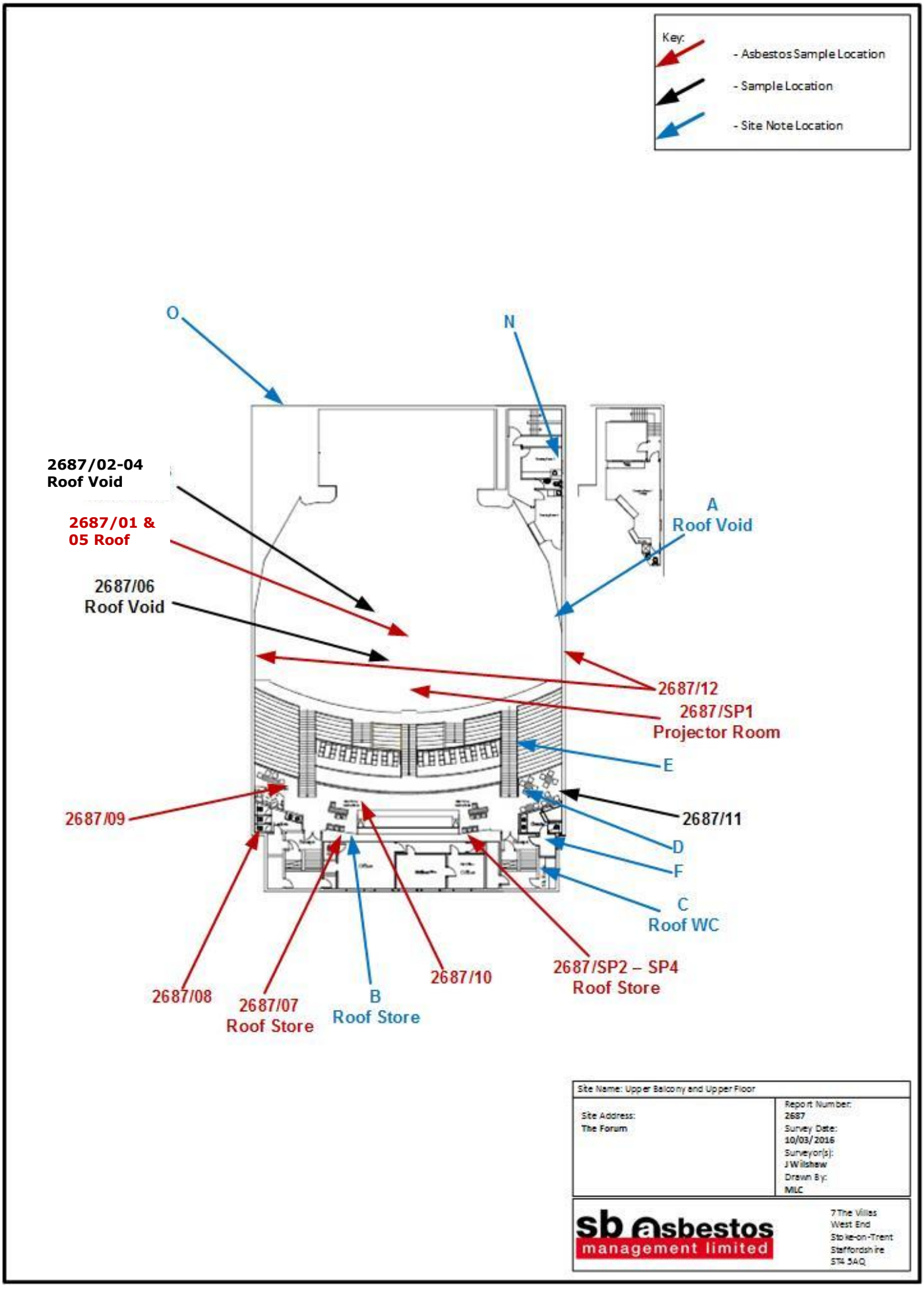
The Risk Assessment Methodology is given at Appendix A.

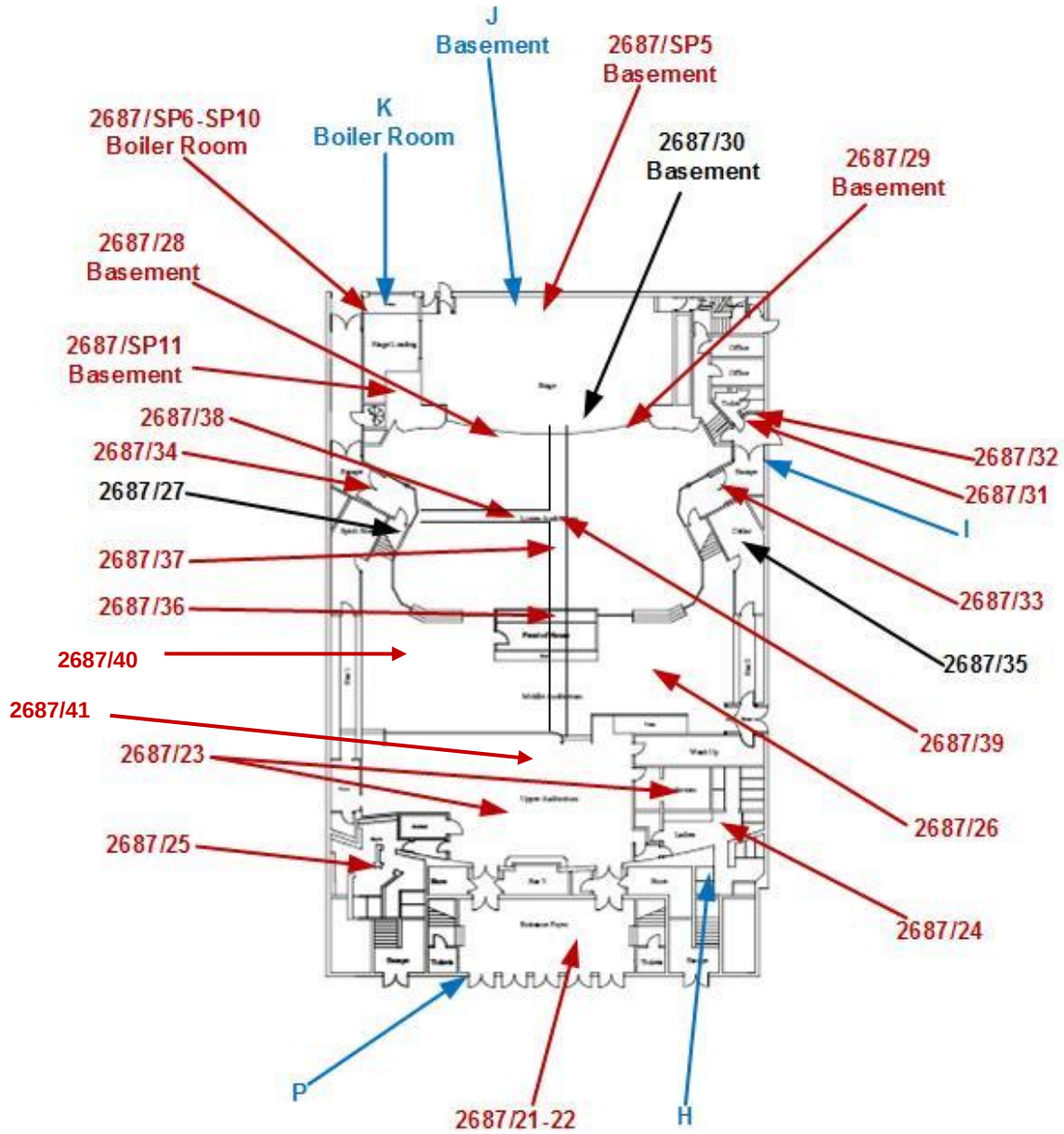
Location	Product Type	Approx. Extent	Accessibility	Extent of Damage	Surface Treatment	Asbestos Type	Sample No.	Material Assessment Score	Recommendation
Exterior, pitched roof, cement sheets	Asbestos Cement	>1000m²	Difficult	Low	Unsealed	Chrysotile	2687/01	4	Manage Risk
Roof void, above dome, cement sheet debris	Asbestos Cement	Various Areas	Medium	Low	Unsealed	Chrysotile	2687/05	4	Manage Risk
Roof void, above dome, projector room, electrical switchgear, woven flashguards	Asbestos Woven Material	<1m²	Difficult	None	Sealed	Chrysotile	2687/SP1	4	Manage Risk
Front roof top store, left hand side store, redundant cement sheets	Asbestos Cement	6m²	Easy	None	Unsealed	Chrysotile	2687/07	3	Manage Risk / Removal
Upper floor female toilets, wall above cubicles, textured coating	Asbestos Textured Coating	2m²	Easy	None	Composite	Chrysotile	2687/08	2	Manage Risk
Upper balcony, low level ceiling, textured coating	Asbestos Textured Coating	20m²	Medium	None	Composite	Chrysotile	2687/09	2	Manage Risk
Upper balcony, ceiling above bar, textured coating	Asbestos Textured Coating	50m²	Medium	None	Composite	Chrysotile	2687/10	2	Manage Risk
Upper balcony, walls, textured coating	Asbestos Textured Coating	200m²	Easy	None	Composite	Chrysotile	2687/12	2	Manage Risk
Front roof top store, right hand side electrical switchgear, woven flashguards	Asbestos Woven Material	<1m²	Medium	None	Sealed	Chrysotile	2687/SP2	4	Manage Risk
Front roof top store, electrical room, wiring, woven wrap	Asbestos Woven Material	<1m²	Difficult	None	Unsealed	Chrysotile	2687/SP3	4	Manage Risk
Front roof top store, redundant electrical fuses, woven flashguards	Asbestos Woven Material	<1m²	Easy	None	Unsealed	Chrysotile	2687/SP4	4	Removal
Middle floor, bar ceiling, textured coating	Asbestos Textured Coating	150m²	Medium	None	Composite	Chrysotile	2687/13	2	Manage Risk
Middle floor, bar walls, textured	Asbestos Textured	100m²	Easy	None	Composite	Chrysotile	2687/14	2	Manage Risk

The extent of each material is an estimate only. Therefore, if the ACMs are to be removed, repaired or encapsulated then the contractor should take his own measurements to ensure accuracy and completeness.

1.2 Site Plans

Site plans are for reference purposes only and may not be to scale. They provide an approximate location of samples taken for analysis, ACMs and presumed ACMs.


Key:
- Asbestos Sample Location
- Sample Location
- Site Note Location
O
N
2687/02-04
Roof Void
2687/01 &
05 Roof
2687/06
Roof Void
A
Roof Void
2687/12
2687/SP1
Projector Room
E
2687/09
2687/11
D
F
C
Roof WC
2687/08
2687/07
Roof Store
B
Roof Store
2687/10
2687/SP2 – SP4
Roof Store
Site Name: Upper Balcony and Upper Floor
Site Address:
The Forum
Report Number:
2687
Survey Date:
10/03/2016
Surveyor(s):
J Wilshaw
Drawn By:
MLC
sb asbestos management limited
7 The Villas
West End
Stoke-on-Trent
Staffordshire
ST4 5AQ



Site Name: Ground Floor	
Site Address: The Forum	Report Number: 2687 Survey Date: 10/03/2016 Surveyor(s): J Wilshaw Drawn By: MLC

sb asbestos management limited
7 The Villas
West End
Stoke-on-Trent
Staffordshire
ST4 3AQ

PART 2: SURVEY INFORMATION

2.1 Instructions, Inaccessible Areas and Reservations

Instructions

SB Asbestos Management Ltd was instructed by Russell Duly of Live Nation (Music) Ltd to conduct a Management Survey for ACMs at O2 Forum Kentish Town, London.

The survey included all areas.

Inaccessible Areas

Details of any inaccessible areas are to be found in Site Notes and Observations below.

Reservations

The duct below the lower auditorium floor has been confirmed to be contaminated with asbestos insulating board (AIB) all access should be restricted until remediation works have taken place.

The lower auditorium dance floor is lined with AIB and all penetrations should be avoided.

Asbestos textured coatings (Artex) to the walls and ceilings have been identified throughout the building. This is classed as a very low risk material however for removal and maintenance purposes it does require precautionary measures to be taken and is classified as non licensed work. Further guidance can be found within HSE publication Asbestos Essentials HSG 213.

All old type electrical switchgear has been found to contain or strongly presumed to contain asbestos woven flashguards all electrical contractors must be made aware of the potential risk.

Standard exclusions and limitations of the survey are to be found within the caveat at Appendix D.

2.2 Survey Protocol

This survey has been performed in accordance with the general principles detailed in *Part 3* of the Health and Safety Executive (HSE) Publication *Asbestos: The Survey Guide, HSG264*, *Second Edition 2012.* This protocol may, however, have been modified in light of client instructions, the necessity to minimise damage and subsequent making good, or the premises being occupied at the time of the survey.

Representative samples were collected during the survey and analysed by a laboratory holding accreditation for asbestos fibre identification by the United Kingdom Accreditation Service (UKAS). If the material sampled was found to contain asbestos, other similar materials used in the same way in the building can be strongly presumed to also contain asbestos.

The survey was non-destructive so, for example, boxings were normally only dismantled where they could be easily accessed and where this did not involve causing damage to either decorations or the boxings. Visible floor duct covers, if present, were raised where easily accessible and where this was unlikely to cause damage to floor finishes. It is, however, possible that duct covers below carpets or floor coverings may not have been identified. Should building or significant maintenance work be planned, or should demolition be intended, then a further intrusive inspection will be necessary. SB Asbestos Management Ltd would be pleased to provide further assistance in these circumstances.

2.3 Purpose and Use of a Management Survey

The purpose of a Management Survey is to locate, as far as is reasonably practicable, the presence and extent of any ACMs in the building that could be disturbed during normal occupancy or during foreseeable maintenance. The survey

also assesses the condition of such ACMs and provides general recommendations regarding future asbestos management.

2.4 Material Reports and Risk Assessments

Material reports and risk assessments for each material which was either identified or presumed to contain asbestos during the survey are provided below. A detailed explanation of the risk assessment methodology can be found at Appendix A.

Each material report includes the following information:

- Sample location and position
- Item or material description
- Fibre analysis
- Asbestos material type
- Approximate extent of each ACM
- Photograph to assist in the identification and monitoring of deterioration
- Risk assessment in a format recommended by the HSE in their publications *HSG 227* and *HSG 264*
- Relevant comments

Address:	O2 Forum Kentish Town	**Report No:**	2687
		Survey Date:	10/03/2016
		Surveyors:	J Wilshaw

Area/Location:	Exterior						
Position:	Pitched roof						
Item /Material:	Cement sheets						
Sample Taken:	**YES**	✓	**NO**		**Laboratory:**	WES	
Sample Number: 2687/01	**Analysis:** Chrysotile						

Product Type	**Extent of Damage**	**Surface Treatment**	**Asbestos Type**	**Material Assessment Score**	**Asbestos Material Type**
Plastic/AC/Dec Finish 1	None 0	Plastics/Resin 0	Chrysotile 1		
AIB/Millboard/ Woven/Paper 2	Low – Scratches/ Broken Edge 1	AC/Painted AIB/ Enclosed Ins/Spray 1	Amphibole excluding Crocidolite 2		
Ins/Spray Coating 3	Medium – Broken Boards/Debris 2	Unsealed AIB/ Sealed Ins/Spray 2	Crocidolite 3		
	High – Damaged Ins/Spray Debris 3	Unsealed Ins/Spray 3			
1	1	1	1	4	**Asbestos Cement**

Extent of Material:	>1000m²						
Accessibility:	Easy		Medium		Difficult	✓	
Recommendations:	Manage Risk						
Comments:	Damage evident to various perimeter panels, rainwater goods and service pipework is of UPVC and metal.						

Address:	O2 Forum Kentish Town	**Report No:**	2687
		Survey Date:	10/03/2016
		Surveyors:	J Wilshaw

Area/Location:	Roof void						
Position:	Above dome						
Item /Material:	Cement sheet debris						
Sample Taken:	**YES**	✓	**NO**		**Laboratory:**	WES	
Sample Number: 2687/05	**Analysis:** Chrysotile						

Product Type	**Extent of Damage**	**Surface Treatment**	**Asbestos Type**	**Material Assessment Score**	**Asbestos Material Type**
Plastic/AC/Dec Finish 1	None 0	Plastics/Resin 0	Chrysotile 1		
AIB/Millboard/ Woven/Paper 2	Low – Scratches/ Broken Edge 1	AC/Painted AIB/ Enclosed Ins/Spray 1	Amphibole excluding Crocidolite 2		
Ins/Spray Coating 3	Medium – Broken Boards/Debris 2	Unsealed AIB/ Sealed Ins/Spray 2	Crocidolite 3		
	High – Damaged Ins/Spray Debris 3	Unsealed Ins/Spray 3			
1	1	1	1	4	**Asbestos Cement**

Extent of Material:	Various Areas						
Accessibility:	Easy		Medium	✓	Difficult		
Recommendations:	Manage Risk						
Comments:	Damaged pieces of asbestos cement roof sheet material is present to the floor area of the void. Small pieces evident throughout.						

APPENDICES

Appendix A: Risk Assessment Methodology

Asbestos Risk Assessment

The HSE advocates a 2 stage Risk Assessment approach using algorithms (numerical scoring systems). These are known as a 'Material Assessment' and a 'Priority Assessment'. Both assessments are then added to produce a 'Total Risk Assessment' score. The use of algorithms is not infallible, but the assessment process is clear and is easily amended if circumstances change.

Material Assessment

The Material Assessment is an assessment of the condition of the ACM, or presumed ACM, and the likelihood of it releasing fibres in the event of it being disturbed in some way. This Material Assessment will provide the Duty Holder with a good initial guide for prioritisation, as it will identify the materials which will most readily release airborne fibres if disturbed. However, there are other factors which need to be taken into account when prioritising action. These are considered in the Priority Assessment (see below).

These four parameters in the Material Assessment are:

- Asbestos material type
- Extent of damage
- Surface treatment
- Asbestos type

The risk assessment score ranges between 2 and 12, producing the following risk bands:

High = 10 – 12 Medium = 7 – 9 Low = 5 – 6 Very Low = 2 – 4

Priority Assessment

The Material Assessment described above identifies the high risk materials; those materials which will most readily release airborne fibres if disturbed. It does not automatically follow that those materials assigned the highest score in the Material Assessment will be the materials that should be given priority for remedial action. Management priorities must be determined only after conducting a Priority Assessment, taking into account additional factors such as:

- Maintenance activity
- Occupant activity
- Likelihood of disturbance
- Human exposure potential

The Priority Assessment can only be carried out with detailed knowledge of all of the above. Although a surveyor, as a member of the assessment team, may have some of the information to contribute to the risk assessment, the Duty Holders are responsible for prioritisation. The Priority Assessment should be completed using both the information given in the survey report and management's detailed knowledge of the activities carried out within the premises. The resultant Risk Assessment will form the basis of the Management Plan, so it is important that it is accurate.

Maintenance Activity

The first and most important factor which must be taken into consideration is the level of maintenance activity likely to be taking place in an area. Maintenance traders such as plumbers and electricians are examples of high risk groups which require the development of appropriate procedures and controls. There are two types of maintenance activity: planned and unplanned. Planned work can be assessed and carried out using procedures and controls to reduce exposure to asbestos. Unplanned work requires the situation to be dealt with as found, and the controls that can be applied may be more limited. The frequency of maintenance activities also needs to be taken into account when deciding what management action is appropriate.

Occupant Activity

The activities carried out in an area will have an impact on the Priority Assessment. When carrying out a Priority Assessment the main type of use of an area and the activities taking place within it should be taken into account. For example, a little used storeroom or an attic will rarely be accessed and so any asbestos is unlikely to be disturbed. At the other end of the scale, in a warehouse lined with asbestos insulating board panels with frequent vehicular movements, the potential for disturbance of ACMs is reasonably high and this would be a significant factor in the Priority Assessment. In addition to the normal or everyday activities taking place in an area, any secondary activities will also require consideration.

Likelihood of Disturbance

The two factors that will determine the likelihood of disturbance are the extent or amount of the ACM and its accessibility or vulnerability. For example, outdoor asbestos soffits are generally inaccessible without the use of ladders or scaffolding and are therefore unlikely to be disturbed. The asbestos cement roof of a hospital ward is also unlikely to be disturbed, but its extent would need to be taken into account in any Priority Assessment. However, if the same ward had asbestos panels on the walls, the probability of disturbance would be much higher due to trolley and bed movements.

Human Exposure Potential

The human exposure potential depends upon three factors: the number of occupants in an area, the frequency of use and the average time each area is in use. For example, a school boiler room is likely to be unoccupied but may be visited daily for a few minutes. The potential for exposure is much less than in a classroom lined with asbestos insulating board panelling for example, which is occupied daily for six hours by 30 pupils and a teacher.

Total Risk Assessment and Use in the Asbestos Management Plan

The scores from the Material Assessment (i.e. the condition of the ACM or presumed ACM) are added to the scores of the Priority Assessment (the likelihood of disturbance) to calculate the overall Total Risk Assessment scores. Total Risk Assessment scores for different ACMs can then be compared to develop an action plan.

Appendix B: Asbestos Management (Statutory Requirement in Commercial Premises)

It is permissible to leave ACMs in-situ provided that the risks are properly managed. *Regulation 4* of *The Control of Asbestos Regulations 2012* requires that the procedures and systems used to effectively manage asbestos are documented within an 'Asbestos Management Plan'.

The Approved Codes of Practice*, Managing and working with asbestos L143 (Revised 2013),* and *A Comprehensive Guide to Managing Asbestos in Premises, HSG227,* provide useful information regarding the content of an Asbestos Management Plan which should include:

- The details of how the location and condition of known, or presumed, ACMs are recorded
- Priority Assessments, including Priority Assessment scores if algorithms have been used
- A table of priority for action
- Decisions about management options, including the rationale (this may include reference to HSE flow charts)
- A timetable for action
- Monitoring arrangements
- Employees and their responsibilities
- Training arrangements for employees and contractors
- A plan of implementation of new procedures, including those for external contractors
- The mechanisms for communicating information about the location and condition of ACMs to those who need it
- Who will oversee the quality of the entries made on the Asbestos Management Plan
- A procedure for review of the Asbestos Management Plan, including a timetable

Retained asbestos materials must be regularly re-inspected to confirm that their condition has not deteriorated. Comprehensive records should be retained for inspection by enforcement inspectors. SB Asbestos Management Ltd would be pleased to provide further asbestos management services if required.

Appendix C: Working with Asbestos Containing Materials

This short summary is intended to provide an overview of legal requirements and is not comprehensive. The relevant statutes, statutory instruments and official publications should be consulted as necessary.

Legislation

The Control of Asbestos Regulations 2012 places numerous obligations on persons working with, removing or disturbing ACMs. The Regulations cover four main areas:

- Licensing of contractors for work with most ACMs
- Working procedures and methods
- Management of asbestos which is left in-situ
- Prohibitions on the use and re-use of ACMs

Further practical information is provided in the Approved Code of Practice *Managing and working with asbestos L143 (Revised 2013).*

In addition to the above asbestos specific regulations, it is important to appreciate that other safety legislation may be relevant in some circumstances. For example, *The Health and Safety at Work etc Act 1974* places general duties on employers and persons in control of premises to ensure the health and safety of employees and others. *The Management of Health and Safety at Work Regulations 1999* obliges employers to assess and control risks from work activities (including potential exposure to asbestos), and *The Construction (Design and Management) Regulations 2007* places a range of safety related duties on clients, planning co-ordinators and principal contractors.

Work Which Requires an HSE Asbestos Licence

Most work with ACMs may only be carried out by a specialist contractor licensed by the HSE under *Regulation 8*. The only exception is where the work is extremely low risk (i.e. when worker exposure is below 0.6 fibres of asbestos per millilitre of air over any 10 minute period, below the 4 hour Control Limit of 0.1 fibres of asbestos per millilitre of air and is restricted to short duration work, work on bonded materials or consists of resealing of ACMs that are already well sealed).

Working Procedures and Methods

There is no known safe level of exposure to asbestos, therefore very detailed and onerous working procedures have been published by the HSE – see *Asbestos: The Licensed Contractors Guide, HSG247* and *Asbestos Essentials, HSG210*.

Work on inherently friable (dust producing) asbestos materials requires full enclosure with negative differential pressure produced by air extraction plant equipped with high efficiency filtration. Entry to the working area is by an airlock system and on-site personal decontamination facilities must be provided. Workers must be subject to medical surveillance and receive detailed certified training.

Work for which an asbestos licence is required must be notified to the enforcing authority at least 14 days before commencement on form ASB5 and, upon completion, it is necessary to obtain a Certificate of Reoccupation from an independent testing laboratory. The issuing laboratory is required to hold accreditation from the United Kingdom Accreditation Service (UKAS) for the certification procedure.

Procedures for work on bonded materials do not necessarily require full enclosure, but this must be fully justified in the written assessment and plan of work which should be prepared before the work starts.

Waste Disposal

Most materials which contain asbestos are classified as 'hazardous'. This includes lower risk ACMs such as asbestos cement and asbestos vinyl floor tiles. Transport from the site requires pre-notification to the Environment Agency and wastes may only be deposited at specially licensed disposal sites.

Using Non-licensed Contractors for Work with Low Risk Materials

As described above, it is occasionally permissible to use non-licensed contractors, such as general builders or demolition contractors, to work on low risk ACMs. SB Asbestos Management Ltd would normally advise against this approach as non-specialists may not be familiar with statutory requirements (such as exposure assessments and waste consignment forms), they may not have specialist equipment and their operatives may not have received the training required by *Regulation 10*.

It is also important that adequate insurances are in place for work with asbestos. Specific asbestos related insurance is generally not held by non-licensed companies, and a client would risk financial loss should a claim arise against the contractor.

Notification of Non-Licensed Work

The Control of Asbestos Regulations 2012 requires that certain non -licensed work with asbestos is notified in advance to the HSE. The definition of work which requires notification includes non-licensed work on friable or degraded materials, or where the ACM is damaged during the removal process. This is different from the notification of licensed work and, once notified, non-licensed work can commence immediately.

Appendix D: Caveat

Every reasonable effort has been made to ensure that the information contained in this report is as accurate and as comprehensive as was practicable at the date of preparation. However, due to the nature of asbestos survey techniques, it is not possible to categorically state whether all ACMs have been identified.

Any areas not accessed during the survey are to be presumed to contain asbestos until proved otherwise. Similarly, we are unable to dismantle electrical equipment, fuel burning appliances, flues and process equipment due to safety and technical considerations. Such items may therefore contain unidentified asbestos materials or components. We would be pleased to complete the inspection, using competent tradesmen where necessary, and at an additional charge. We would also require your authority to isolate and dismantle any such items.

A number of asbestos products contain asbestos fibres that are so well bound into the matrix of the parent material that they do not readily generate respirable asbestos fibres under reasonably foreseeable circumstances. Examples of such materials include sealing mastics, rubber gaskets, bitumen patches and damp proof membranes. All such materials may have therefore been excluded from the report.

Certain 'Artex' type textured coatings and decorative plasters may contain very small quantities of asbestos. In-situ these coatings are often composed of different batches of product, or may have been repaired/patched at different times. It is therefore possible that any 'Artex' samples taken may not be representative of the entire coating. Recent research suggests that in some cases the fibres may have diameters below 0.1μm. These may not be visible by the optical microscopy method described in HSE publication *HSG 248 (2005).* If required, we can arrange for more advanced analysis at an additional charge.

Where ACMs were installed during construction, it is possible that unidentified contamination may exist within, or below, other components, for example below floor screeds. It is also possible that unidentified asbestos residues resulting from earlier asbestos removal works may be present in relatively inaccessible locations such as behind claddings and fixtures, or they may have been covered with more recent paint finishes. Where such residues are found, these may be more extensive than those identified.

Our standard terms of business exclude liabilities arising out of pollution or contamination of any kind and the survey did not include a contaminated land assessment. We therefore accept no liability for reductions in land values or subsequent remediation costs which could result.

SB Asbestos Management Ltd cannot therefore accept liability for loss, injury, damage or penalty caused by such omissions contained in this report. The report does not waive the responsibility of the building owner, contractor etc. to ascertain for himself the composition of materials with which he may work, or which may be disturbed.

'Taking a Sensible Approach to Asbestos'

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Registered in England under number 7037491 VAT No 981 8180 89

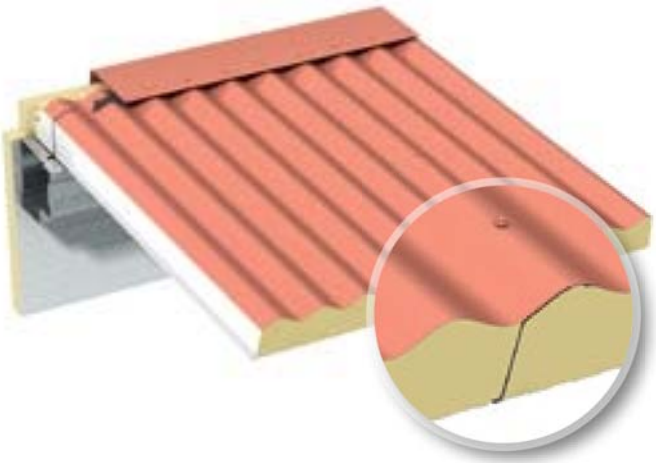
APPENDIX D

Insulated Roof & Wall Panels

Sinusoidal KS1000 SRW

Berghorst Farm Shed, Dronten, Netherlands

Sinusoidal is a through-fix sinusoidal profiled insulated roof panel which can be used for building applications with roof pitches of 4° or more after deflection.



Product Features

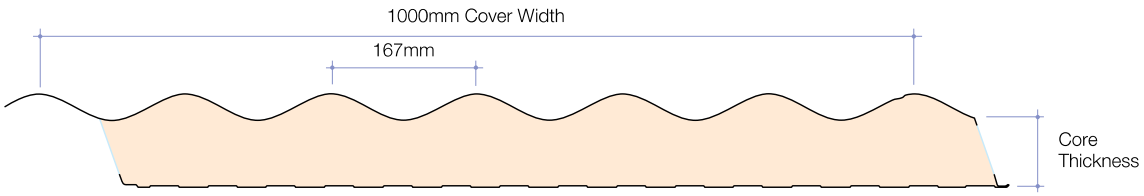
Profile:	Sinusoidal
Fixing detail:	Through-fix
Metal type:	Steel
Colours:	Kingspan XL Forté (Symphony / Vivace / Crescendo) and Kingspan Spectrum (Solid / Metallic / Diamond)
Application:	Pitched roofs of 4° or more after deflection
Lengths:	From 1.8m to 17.8m
Cover width:	1000mm
Environmental rating:	May be Green Guide A+ rated, subject to project specific assessment
Fire rating:	LPCB approved
Product compatibility:	Integrates with Kingspan Safety solutions and Kingspan Roof Mounted PV System; rooflight solution is available
Seals:	Site-applied side and end lap sealants

FIREsafe FIBREfree

Insulated Roof & Wall Panels

Sinusoidal KS1000 SRW

KS1000 SRW



Product Specifications and Accreditations

Product Reference	Standard Environment	Temp. Control	Hygiene	High Humidity	Low Temp.	Fire Rating LPCB	Fire Rating FM
KS1000 SRW	✓	✓	✓	✓	•	✓	•

Dimensions, Weight and Thermal Performance

Core Thickness (mm)	40	60	80
Overall Thickness (mm)	70	90	110
U-value (W/m²K)	0.46	0.32	0.25
Weight (kg/m²) 0.5 steel / 0.4 steel	10.3	11.3	12.0

The U-values have been calculated using the method required by the appropriate National Building Regulations.

APPENDIX E